A Survey of Medicinal Plants Used by Garo and Non-Garo Traditional Medicinal Practitioners in Two Villages of Tangail District, Bangladesh


ABSTRACT

Folk medicine is a traditional form of medicinal practice in Bangladesh, which is practiced by practitioners who exist both among the mainstream Bengali-speaking population as well as among the various tribes of Bangladesh. The mainstay of the folk medicinal formulations consist of medicinal plants, which are used directly or in the form of decoctions, juice, pastes and are administered either orally or topically, depending upon the ailments treated. The objective of the present study was to conduct an ethnomedicinal survey among the traditional medicinal practitioners, otherwise known as Kavirajes of two villages of Madhupur sub-district in Tangail district of the country. One practitioner catered to the medicinal needs of the Bengali speaking population, while the other belonged to the Garo tribe and administered to the medicinal needs of the Garo village community. It was observed that a total of 53 plant species were prescribed by the two practitioners, of which 37 plants were prescribed by the non-Garo practitioner and 16 plants by the Garo practitioner. The various plant species belonged to 37 families. Major families included the Fabaceae family, which contributed 4 plants and the Acanthaceae, Combretaceae and Rutaceae families, which contributed 3 plants per family. Leaves formed the major plant part used (43.8%) in the formulations followed by stems and fruits at 14.1% each. Roots were used 12.5% of the time. Other plant parts used included sap, bark, flower, fruit, seed, oil and rhizome. Whole plants were not used at all by any of the two practitioners surveyed. The major ailments treated were gastrointestinal disorders (including diarrhea, dysentery and acidity) and sexual disorders (including loss of libido, infertility and passing of semen with urine). Nine plants were used for treatment of pain in various parts of the body and 8 plants were used for treatment of skin diseases. Four plants were used for treatment of jaundice and three plants each were used for treatment of fever, cholera, or urinary problems. Other diseases treated by the practitioners were helminthiasis, asthma, heart disorders and hemorrhoids, sexually transmitted diseases like syphilis and gonorrhea and chicken pox. Two plants were used for preventive purposes; Opuntia dillenii was advised to be taken for maintenance of health and mental strength, while Tinospora crispa was advised to be taken for prevention of intestinal disorders. The Kavirajes also prescribed Zanthoxyllum simulans not for treatment of any disease but as a vitamin source. Plants have always formed an important source for discovery of modern allopathic medicines. It is expected that the plants observed to be used for treatment of various diseases by the Kavirajes can be subjected for further bio-activity studies, which studies can lead to discovery of better drugs.

Key words: Medicinal plants, Garos, Tangail, Kaviraj, Bangladesh.

Introduction

It has been estimated that there may be around 250,000 plant species present throughout the world. Plants, from time immemorial, have served human beings as sources of food, shelter, clothing and medicines. Before the advent of modern allopathic medicine and synthetic drugs, plants and to a certain extent, animals and minerals were used in various formulations for treatment of diseases by traditional medicinal practitioners. With the introduction of allopathic medicine and setting up of rigorous criteria for investigating any drug before it reached the market, synthetic medicines have to some extent displaced the original reliance on plant-based medicines. However, the latter is still important and many modern drugs owe their existence to observations of
medicinal practices of indigenous peoples (Cotton, 1996). It has also further been observed that while 1 out of 125 plant-derived products end up successfully as a drug (McCaleb, 1997), the same is true for only 1 in 10,000 out of synthetic chemicals (Chadwick and Marsh, 1994). The plant kingdom is still therefore necessary for further research towards discovery of more efficacious drugs, more so, because a number of synthetic drugs have developed drug-resistant vectors or have serious side-effects.

Scientists have now re-focused their interests on the traditional medicinal systems of many countries in their efforts to find out newer drugs for emerging diseases and better drugs for already existent diseases. Traditional medicinal systems, merely because of their long usage, have developed an extensive knowledge on the various properties of different plants and plant parts and which properties, if efficiently utilized, can lead to many novel and effective drugs. Bangladesh has a long history of several forms of traditional medicine in operation, including the Ayurvedic, homeopathic and the folk medicinal system. The latter is the system most extensively practiced in the country, with the practitioners being known as Kavirajes or Vaidyas. The various tribes of the country also possess their own tribal medicinal practitioners, whose system is closely allied to the folk medicinal system used by the Kavirajes. The basic similarity between mainstream Kavirajes and tribal medicinal practitioners is their use of medicinal plants for treatment of most diseases. Folk or tribal medicinal practitioners tend to keep the treatment methods within the family, where the knowledge is passed on from generation to generation. As a result over the centuries, Kavirajes and tribal medicinal practitioners have developed a familiarity with plant species found in their region of habitat and the properties of those plant species, particularly their applicability in various types of diseases.

We had been conducting ethnomedicinal surveys among the Kavirajes of various regions of the country as well as tribal medicinal practitioners for the last few years (Nawaz et al., 2009; Rahmatullah et al., 2009a-c; Hasan et al., 2010; Hossan et al., 2010; Mollik et al., 2010a,b; Rahmatullah et al., 2010a-g; Jahan et al., 2011). During the course of our surveys we have observed that the medicinal plants selected by the Kavirajes for treatment of same ailment or symptom differs considerably between practitioners of even adjoining villages or areas. To get a comprehensive view of the medicinal plants used by folk and traditional medicinal practitioners, it is therefore necessary to interview as many Kavirajes and tribal medicinal practitioners as possible. Most Kavirajes are present in the more than 86,000 villages of the country and the small towns, although quite a few are present also in the cities. The tribal practitioners are scattered among the various tribes inhabiting mostly the southeast and northern regions of Bangladesh. It was the objective of the present study to conduct an ethnomedicinal survey among the traditional medicinal practitioners of two villages, namely Jool chotro and Janglia in Madhupur sub-district of Tangail district, Bangladesh. The first village was inhabited by Bengali-speaking Muslim people, who form the majority population of the country, while the second village was inhabited by the Garos - a major ethnic community of the country. The Garos, although they have their own language have in recent years can speak and understand the Bengali language fluently.

Materials and Methods

The present survey was conducted among the folk and tribal medicinal practitioners of Jool chotro and Janglia villages, which lie in Madhupur sub-district (Upazilla) of Tangail district, Bangladesh. The first village was inhabited by Bengali-speaking Muslim population, who form the majority of population within the country. The village had one Muslim folk medicinal practitioner (Kaviraj), named Md. Abdur Rahim. The second village was inhabited by the Garos, an ethnic community of Bangladesh who constitute one of the major tribes of the country. The Garos practice both Hinduism and animism, although in recent years, substantial numbers have converted to Christianity. The Garo tribal practitioner was named Sree Jatin Boshu and could speak Bengali fluently besides the Garo language.

Informed consent was first obtained from both practitioners. The practitioners had no objections to their names or their provided information being disseminated through national or international publications. Interviews were conducted in Bengali, which was the language spoken and understood by both interviewers and interviewees. Information on ailments treated and medicinal plants used in the treatments was collected with the help of a semi-structured questionnaire and the guided field-walk method of Martin (1995) and Maundu (1995). Briefly, in this method, the practitioners took the interviewers on guided field-walks through areas from where they collected their plants, pointed out the plants, provided the names and described their uses. Plant specimens were collected and dried on the spot and later brought back to Dhaka for identification. Identification was done by Mr. Manjur-Ul-Kadir Mia, Ex-Curator and Principal Scientific Officer of the Bangladesh National Herbarium at Dhaka.

Results and Discussion

It was observed that the two practitioners between themselves used a total of 53 plant species distributed into 37 families for treatment of various ailments. The results are shown in Table 1. The Fabaceae family
contributed the largest number of plant species (4), followed by the Acanthaceae, Combretaceae and the Rutaceae families with 3 plants each. Leaves constituted the major plant part used forming 43.8% of total uses. Leaves were followed by stems and fruits at 14.1% of total uses. Roots were used 12.5% of the time. Other plant parts used were plant sap (3.1%), bark, flowers, seeds and rhizomes (1.6% each) and oil obtained from plants (6.3%). Whole plants were not used by any of the Kavirajes. Of the 53 plant species, the non-Garo practitioner provided 37 plants, while the Garo practitioner provided 16 plants.

Table 1: Medicinal plants used by Garo and non-Garo traditional medicinal practitioners in two villages of Tangail district.

<table>
<thead>
<tr>
<th>Botanical name</th>
<th>Family</th>
<th>Local name</th>
<th>Parts used</th>
<th>Disease and dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Andrographis paniculata</strong> (Burm. F.) Wall. ex Nees</td>
<td>Acanthaceae</td>
<td>Kalomegh</td>
<td>Leaf</td>
<td>Headache. Juice obtained from macerated leaves of Leucas aspera, leaves of Andrographis paniculata and rhizomes of Zingiber officinale is mixed and orally taken.</td>
</tr>
<tr>
<td><strong>Barleria prionitis</strong> L.</td>
<td>Acanthaceae</td>
<td>Chotki pata (Garo)</td>
<td>Leaf</td>
<td>Skin diseases, gastric problems. Crushed leaves are topically applied to skin for skin diseases; juice obtained from macerated leaves is taken for gastric problems.</td>
</tr>
<tr>
<td><strong>Justicia adhatoda</strong> L.</td>
<td>Acanthaceae</td>
<td>Bashok</td>
<td>Leaf</td>
<td>Asthma, jaundice. Juice obtained from macerated leaves is orally administered.</td>
</tr>
<tr>
<td><strong>Curculigo orchioides</strong> Gaertn.</td>
<td>Amaryllidaceae</td>
<td>Shokti bindu (Garo), Shongkho mul</td>
<td>Leaf, root</td>
<td>Sexual problems including loss of libido and low semen density. Juice obtained from macerated leaves of Curculigo orchioides and roots of Asparagus racemosus is taken orally. Ear ache, sexual weakness. Juice obtained from macerated leaves is applied topically to ears for ear ache. Juice obtained from macerated roots is taken for sexual weakness.</td>
</tr>
<tr>
<td><strong>Lannea coromandelica</strong> (Houtt.) Merr.</td>
<td>Anacardiaceae</td>
<td>Jiga</td>
<td>Sap</td>
<td>Jaundice. Sap is orally administered.</td>
</tr>
<tr>
<td><strong>Mangifera indica</strong> L.</td>
<td>Anacardiaceae</td>
<td>Aam</td>
<td>Leaf, stem</td>
<td>Dysentery. Juice from macerated young leaves of Clerodendrum viscosum is mixed with juice from macerated leaves of Psidium guajava, leaves and stems of Mangifera indica and leaves and stems of Aegle marmelos and orally administered.</td>
</tr>
<tr>
<td><strong>Chromolaena odorata</strong> (L.) R. M. King &amp; H. Rob.</td>
<td>Asteraceae</td>
<td>Ful ghori (Garo)</td>
<td>Leaf, root</td>
<td>Tooth ache. Juice obtained from macerated leaves and roots is taken for tooth pain. Fever. Macerated roots of Cannabis sativa and leaves of Chromolaena odorata are combined and taken for fever.</td>
</tr>
<tr>
<td><strong>Bombax ceiba</strong> L.</td>
<td>Bombacaceae</td>
<td>Shimul</td>
<td>Root</td>
<td>Decreased sperm count, passing of semen with urine. Juice obtained from stems of Phyllanthus emblica, fruits of Terminalia chebula, leaves of Mucuna pruriens, roots of Ipomoea mauritiana, roots of Bombax ceiba and roots of Asparagus racemosus is mixed together and taken with honey.</td>
</tr>
<tr>
<td><strong>Ananas comosus</strong> (L.) Merr.</td>
<td>Bromeliaceae</td>
<td>Anarosh</td>
<td>Leaf, fruit</td>
<td>Helminthiasis, fever. Juice obtained from macerated leaves is orally administered for helminthic infections. Fruits are taken during fever.</td>
</tr>
<tr>
<td><strong>Opuntia dillenii</strong> (Ker-Gawl.) Haw.</td>
<td>Cactaceae</td>
<td>Moni raj</td>
<td>Leaf</td>
<td>To maintain health and mental strength. Juice obtained from macerated leaves is orally taken.</td>
</tr>
<tr>
<td><strong>Cannabis sativa</strong> L.</td>
<td>Cannabaceae</td>
<td>Shindhuk (Garo)</td>
<td>Root</td>
<td>Fever. Macerated roots of Cannabis sativa and leaves of Chromolaena odorata are combined and taken for fever.</td>
</tr>
<tr>
<td><strong>Terminalia arjuna</strong> (Roxb. ex DC.) Wright &amp; Arn.</td>
<td>Combretaceae</td>
<td>Arjun</td>
<td>Leaf, bark</td>
<td>Weakness of heart, joint pain. Boiled bark is orally taken for weakness of heart. Paste of boiled leaves is topically applied to joints as treatment of joint pain.</td>
</tr>
<tr>
<td><strong>Terminalia belerica</strong> (Gaertn.) Roxb.</td>
<td>Combretaceae</td>
<td>Bohera</td>
<td>Fruit</td>
<td>Dysentery, cholera, gastric problems. Juice obtained from macerated fruits of Phyllanthus emblica, Terminalia belerica and Terminalia chebula is mixed with juice obtained from macerated leaves of Mucuna pruriens and orally administered.</td>
</tr>
<tr>
<td><strong>Terminalia chebula</strong> Retz.</td>
<td>Combretaceae</td>
<td>Hortoki</td>
<td>Fruit</td>
<td>Decreased sperm count, passing of semen with urine. Juice obtained from stems of Phyllanthus emblica, fruits of Terminalia chebula, leaves of Mucuna pruriens, roots of Ipomoea mauritiana, roots of Bombax ceiba and roots of Asparagus racemosus is mixed together and taken with honey. Dysentery, cholera, gastric problems. Juice obtained from macerated fruits of Phyllanthus emblica is mixed with juice obtained from macerated leaves of Leucas aspera, leaves of Andrographis paniculata and rhizomes of Zingiber officinale. Juice obtained from macerated leaves is taken for gastric problems.</td>
</tr>
</tbody>
</table>
**Commelina benghalensis** L.  
**Commelinae**  
Kanai dinga  
Leaf  
Jaundice. Juice obtained from macerated leaves is taken with mashed rice.

**Ipomoea aquatica** Forsk.  
Convulvulacea  
Kolmi shak  
Leaf, stem  
Infertility in women, irregular menstruation. Juice from macerated flowers of *Hibiscus rosa-sinensis* is mixed with juice obtained from macerated leaves and stems of *Ipomoea aquatica* and orally administered. Sexual disorders. Boiled leaves are eaten.

**Ipomoea mauritiana** Jacq.  
Convulvulacea  
Voi kumra (Garo)  
Root  
Decreased sperm count, passing of semen with urine. Juice obtained from stems of *Phyllanthus emblica*, fruits of *Terminalia belerica* and *Terminalia chebula*, leaves of *Mucuna pruriens*, roots of *Ipomoea mauritiana*, roots of *Bombax ceiba* and roots of *Asparagus racemosus* is mixed together and taken with honey.

**Dillenia indica** L.  
Dilleniaceae  
Joina (Garo)  
Oil  
Skin diseases. Oil is applied to affected areas.

**Dipterocarpus turbinatus** Gaertn. f. D. Laevis  
Dipterocarpaceae  
Gorjon  
Oil  
Eczema, cuts and wounds. Oil is topically applied.

**Shorea robusta** C. F. Gaertn. (Smit)  
Dipterocarpaceae  
Shal  
Sap  
Stomach disorders, stomach pain. Sap is orally administered.

**Phyllanthus emblica** L.  
Euphorbiaceae  
Aoula kota (Garo)  
Stem, fruit  
Decreased sperm count, passing of semen with urine. Juice obtained from stems of *Phyllanthus emblica*, fruits of *Terminalia belerica* and *Terminalia chebula*, leaves of *Mucuna pruriens*, roots of *Ipomoea mauritiana*, roots of *Bombax ceiba* and roots of *Asparagus racemosus* is mixed together and taken with honey.

**Mimosa pudica** L.  
Fabaceae  
Laal lojaboti  
Leaf  
Sores, blotches on skin. Mashed leaves are applied to skin.

**Mucuna pruriens** (L.) DC.  
Fabaceae  
Alkushi  
Leaf  
Decreased sperm count, passing of semen with urine. Juice obtained from macerated leaves and stems is orally administered.

**Tamarindus indica** L.  
Fabaceae  
Tetul  
Leaf  
Bleeding due to hemorrhoids, syphilis, infections within the penis, difficulty during urination, burning sensations during urination. Juice obtained from macerated leaves of *Tamarindus indica* and *Piper longum* is orally administered. For penile infections, the penis also has to be cleaned with the help of a syringe.

**Leucas aspera** (Willd.) Link.  
Lamiaceae  
Dondo kolosh  
Leaf  
Headache. Juice obtained from macerated leaves of *Leucas aspera*, leaves of *Andrographis paniculata* and rhizomes of *Zingiber officinale* is mixed and orally taken.

**Litsea glutinosa** (Lour.) C.D.Robins.  
Lauraceae  
Khara jora  
Leaf  
Loss of libido, low semen count. Juice obtained from macerated leaves is orally administered.

**Barringtonia acutangula** (L.) Gaertn.  
Lecythidaceae  
Gadila (Garo)  
Leaf  
Pain due to injury. Juice obtained from macerated leaves is topically applied.

**Careya arborea** Roxb.  
Lecythidaceae  
Chambol (Garo)  
Seed  
Eczema. Mashed seeds are topically applied to affected areas.

**Asparagus racemosus** Willd.  
Liliaceae  
Shotomul  
Root  
Decreased sperm count, passing of semen with urine. Juice obtained from stems of *Phyllanthus*
<table>
<thead>
<tr>
<th>Lygodium flexuosum (L.) Sw.</th>
<th>Lygodiaeae</th>
<th>Farn</th>
<th>Leaf</th>
<th>Intestinal problems. Leaves are cooked and eaten.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hibiscus rosa sinensis L.</td>
<td>Malvaceae</td>
<td>Rokto joba</td>
<td>Flower</td>
<td>Infertility in women, irregular menstruation. Juice from macerated flowers of <em>Hibiscus rosa sinensis</em> is mixed with juice obtained from macerated leaves and stems of <em>Ipomoea aquatica</em> and orally administered.</td>
</tr>
<tr>
<td>Sida cordifolia L.</td>
<td>Malvaceae</td>
<td>Veola kota (Garo)</td>
<td>Root</td>
<td>Skin diseases. Crushed roots are applied to affected areas.</td>
</tr>
<tr>
<td>Tinospora crispa (L.) Hook.f. &amp; Thoms.</td>
<td>Menispermaceae</td>
<td>Guloncho</td>
<td>Stem</td>
<td>Prevention of intestinal disorders. Juice obtained from macerated stems is taken.</td>
</tr>
<tr>
<td>Ficus racemosa L.</td>
<td>Moraceae</td>
<td>Jol donga</td>
<td>Leaf</td>
<td>Chicken pox. Crushed leaves are topically applied to the body.</td>
</tr>
<tr>
<td>Streblus asper Lour.</td>
<td>Moraceae</td>
<td>Shaora</td>
<td>Leaf</td>
<td>Blood purifier, diarrhea. Juice obtained from macerated leaves is taken.</td>
</tr>
<tr>
<td>Ardisia solanacea Roxb.</td>
<td>Myrsinaceae</td>
<td>Tita jam</td>
<td>Fruit</td>
<td>Jaundice, blood purifier. Fruits are taken.</td>
</tr>
<tr>
<td>Psidium guajava L.</td>
<td>Myrtaceae</td>
<td>Peyara</td>
<td>Leaf</td>
<td>Dysentery. Juice from macerated young leaves of <em>Clerodendrum viscosum</em> is mixed with juice from macerated leaves of <em>Psidium guajava</em>, leaves and stems of <em>Mangifera indica</em> and leaves and stems of <em>Aegle marmelos</em> and orally administered.</td>
</tr>
<tr>
<td>Averrhoa carambola L.</td>
<td>Oxalidaceae</td>
<td>Kanranga</td>
<td>Fruit</td>
<td>Tooth ache, to prevent oral infections. Fruits are chewed.</td>
</tr>
<tr>
<td>Piper longum L.</td>
<td>Piperaceae</td>
<td>Pipul</td>
<td>Leaf</td>
<td>Bleeding due to hemorrhoids, syphilis, infections within the penis, difficulty during urination, burning sensations during urination. Juice obtained from macerated leaves of <em>Tamarindus indica</em> and <em>Piper longum</em> is orally administered. For penile infections, the penis also has to be cleaned with the help of a syringe.</td>
</tr>
<tr>
<td>Saccharum officinarum L.</td>
<td>Poaceae</td>
<td>Aakh</td>
<td>Stem juice</td>
<td>Acidity. Unripe fruit of <em>Aegle marmelos</em> is burnt in fire of cow dung and then taken with molasses prepared from sugarcane (<em>Saccharum officinarum</em>) juice as remedy for acidity.</td>
</tr>
<tr>
<td>Catunaregam spinosa (Thunb.) Tirveng.</td>
<td>Rubiaceae</td>
<td>Mon kata (Garo)</td>
<td>Leaf, fruit</td>
<td>Skin diseases, dysentery. Crushed leaves are topically applied for skin diseases. Fruits are taken for dysentery.</td>
</tr>
<tr>
<td>Aegle marmelos (L.) Corr.</td>
<td>Rutaceae</td>
<td>Bel</td>
<td>Leaf, stem, fruit</td>
<td>Dysentery. Juice from macerated young leaves of <em>Clerodendrum viscosum</em> is mixed with juice from macerated leaves of <em>Psidium guajava</em>, leaves and stems of <em>Mangifera indica</em> and leaves and stems of <em>Aegle marmelos</em> and orally administered. To remove foul odor from sweat, insanity or incoherency, acidity, ear diseases, eye diseases. Juice obtained from macerated leaves is applied to the body to remove foul odor from sweating. Leaves are crushed and applied to scalp for insanity or incoherency. Unripe fruit of <em>Aegle marmelos</em> is burnt in fire of cow dung and then taken with molasses prepared from sugarcane juice as remedy for acidity. Juice obtained from crushed young leaves is applied to ears for ear diseases. Fruit juice is applied around the eyes for eye diseases.</td>
</tr>
<tr>
<td>Glycosmis pentaphylla (Retz.) Corr.</td>
<td>Rutaceae</td>
<td>Mou dal (Garo)</td>
<td>Root</td>
<td>Pvoirhea, tooth ache. Juice obtained from macerated roots is orally taken.</td>
</tr>
<tr>
<td>Zanthoxylum simulans Hance.</td>
<td>Rutaceae</td>
<td>Kata khura</td>
<td>Oid</td>
<td>Vitamin source.</td>
</tr>
<tr>
<td>Verbascum chinense (L.) Santapau</td>
<td>Scrophulariaceae</td>
<td>Shial moti</td>
<td>Leaf</td>
<td>Infections from cuts and wounds. Macerated leaves are applied.</td>
</tr>
<tr>
<td>Smilax zeylanica L.</td>
<td>Smilacaceae</td>
<td>Shoto naiye (Garo)</td>
<td>Stem</td>
<td>Sexual weakness. Juice obtained from macerated stem is orally taken.</td>
</tr>
<tr>
<td>Solanum americanum Mill.</td>
<td>Solanaceae</td>
<td>Jolong kotha (Garo)</td>
<td>Leaf</td>
<td>Gonorrhea, urinary problems. Juice obtained from macerated leaves is taken for gonorrhea. Juice obtained from macerated young leaves is taken for...</td>
</tr>
</tbody>
</table>
Applications were either oral or topical depending upon the ailment. In most cases, juice obtained from macerated plant part was administered. Plant sap was administered orally, like administration of sap of plant part from the same plant, as well as a combination of plant parts from different plants. For instance leaves of *Phyllanthus emblica* were used for treatment of asthma and jaundice. Juice obtained from a combination of macerated leaves and stems of *Mimosa diplotricha* was used for treatment of low semen volume and loss of libido in men. On the other hand, for treatment of decreased sperm count and passing of semen with urine, stems of *Phyllanthus emblica* were combined with fruits of *Terminalia chebula*, leaves of *Mucuna pruriens* and roots of *Ipomoea mauritiana*, *Bombax ceiba* and *Asparagus racemosus* for treatment. Occasionally, two different plant parts from the same plant would be used for treatment of two different ailments. As an instance, leaves of *Ananas comosus* were used for treatment of helmintiiasis, while fruits from the same plant were used for treatment of fever. Overall, our observations indicated that the Kavirajes possessed quite extensive knowledge about the healing properties of different plant parts of the various plant species used.

Gastrointestinal and sexual disorders appeared to be the major problems of the two communities (Garos and non-Garos) based on the number of plants used for treatment of these two disorders. Fourteen plants each were used for treatment of these two types of disorders. Gastrointestinal disorders are common in Bangladesh because most of the rural people live without proper drinking water and sanitary facilities. However, sexual disorders are not so common, at least based on the number of published reports. The presence of sexual disorders like loss of libido or low semen density or passing of semen with urine merits further independent investigations to find out the root causes.

Nine plants were used for treatment of pain and eight plants used for treatment of skin diseases. Pain in various forms is a common feature among the rural population based on their hard-working lifestyle and having inadequate nutrition, while skin diseases are also common among the rural population because of their working in the fields and lack of maintenance of proper hygiene. The two communities surveyed in the present study live in forested areas, which contribute to the dampness of the surroundings and as such may cause increased bacterial and fungal infestations of the skin. Other ailments treated included asthma, jaundice, fever, helmintiasis, heart disorders, cholera, syphilis, gonorrhea, chicken pox, infections, urinary problems, hemorrhoids and cuts and wounds.

Two plants were used not for treatment of any diseases but for preventive purposes. The leaves of *Opuntia dillenii* were advised by the practitioners to be orally taken to maintain health and mental strength. The stems of *Tinospora crispa* were advised to be taken for prevention of intestinal disorders. The oil obtained from *Zanthoxylum simulans* was advised to be taken as a source of vitamins. These observations suggest that the Kavirajes were aware of the efficacy of vitamins and also recognized the value of preventing diseases rather than treating diseases following their occurrences.

Increasingly, modern scientific studies are validating the traditional uses of plants for cure. To cite just two examples, *Justicia adhatoda* was observed to be used by the Kavirajes in the present study for treatment of asthma. The plant has been shown to contain alkaloids, which exert a beneficial effect on inflammatory diseases (Chakraborty and Brantner, 2001); a bronchodilator alkaloid, vasicinone has also been reported to be present in the plant (Amin and Mehta, 1959). The cardioprotective effects of *Terminalia arjuna*, which was observed to be used by the Kavirajes for treatment of heart disorders, has also been quite well established (Dwivedi and Gupta, 2002; Karthikeyan et al., 2003; Gauthaman et al., 2005; Singh et al., 2008). It is very much plausible that more scientific studies will lead to more validation of the other plant’s traditional medicinal uses.
Documenting the traditional uses of medicinal plants for treatment of various ailments can become a valuable tool for conducting further bio-active studies on the relevant plant species. These studies, in turn, lead to discovery of lead compounds and novel efficacious drugs. A further benefit of obtaining information on valuable phytochemicals present in the plant and their disease-curing abilities can spur conservation efforts to protect not only one plant species but in general all plant species. Various plant species are threatened to the point of becoming endangered or extinct in various parts of the world. If this trend continues, human beings will lose an important asset for combating both existing as well as newly emerging diseases.

References


