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ORIGINAL ARTICLES

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

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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 *Zanthoxylum 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

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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 Janga lia 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 Janga lia 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.

Botanical name	Family	Local name	Parts used	Disease and dosage
Andrographis paniculata (Burm. F.) Wall. ex Nees	Acanthaceae	Kalomegh	Leaf	Headache. Juice obtained from macerated leaves of *Leucas aspera*, leaves of *Andrographis paniculata* and rhizomes of *Zingiber officinale* is mixed and orally taken.
Barleria prionitis L.	Acanthaceae	Chotki pata (Garo)	Leaf	Skin diseases, gastric problems. Crushed leaves are topically applied to skin for skin diseases; juice obtained from macerated leaves is taken for gastric problems.
Justicia adhatoda L.	Acanthaceae	Bashok	Leaf	Asthma, jaundice. Juice obtained from macerated leaves is orally administered.
Curculigo orchioides Gaertn.	Amaryllidaceae	Shokti bindu (Garo), Shongkho mul	Leaf, root	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.
Lannea coromandelica (Houtt.) Merr.	Anacardiaceae	Jiga	Sap	Jaundice. Sap is orally administered.
Mangifera indica L.	Anacardiaceae	Aam	Leaf, stem	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.
Chromolaena odorata (L.) R. M. King & H. Rob.	Asteraceae	Ful ghori (Garo)	Leaf, root	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.
Bombax ceiba L.	Bombacaceae	Shimul	Root	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.
Ananas comosus (L.) Merr.	Bromeliaceae	Anarosh	Leaf, fruit	Helminthiasis, fever. Juice obtained from macerated leaves is orally administered for helmintic infections. Fruits are taken during fever.
Opuntia dillenii (Ker-Gawl.) Haw.	Cactaceae	Moni raj	Leaf	To maintain health and mental strength. Juice obtained from macerated leaves is orally taken.
Cannabis sativa L.	Cannabaceae	Shindhik (Garo)	Root	Fever. Macerated roots of *Cannabis sativa* and leaves of *Chromolaena odorata* are combined and taken for fever.
Terminalia arjuna (Roxb. ex DC.) Wight & Arn.	Combretaceae	Arjun	Leaf, bark	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.
Terminalia belerica (Gaertn.) Roxb.	Combretaceae	Bohera	Fruit	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.
Terminalia chebula Retz.	Combretaceae	Hortoki	Fruit	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, *Terminalia belerica* and *Terminalia chebula* is mixed with juice obtained from macerated leaves of *Mucuna pruriens* and orally administered.
Commelina benghalensis L.	Commelinaceae	Kanai dinga (Garo)	Leaf	Jaundice. Juice obtained from macerated leaves is taken with mashed rice.
Ipomoea aquatica Forssk.	Convolvulaceae	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.	Convolvulaceae	Voi kumra (Garo)	Root	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.
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 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*, *Terminalia belerica* and *Terminalia chebula* is mixed with juice obtained from macerated leaves of *Mucuna pruriens* and orally administered.
Mimosa diplotricha C. Wright ex Sauvalle	Fabaceae	Shada lojjaboti	Leaf, stem	Low semen volume, loss of libido. Juice obtained from macerated leaves and stems is orally administered.
Mimosa pudica L.	Fabaceae	Laal lojjaboti	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 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*, *Terminalia belerica* and *Terminalia chebula* is mixed with juice obtained from macerated leaves of *Mucuna pruriens* and 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*

				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. 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.
Lygodium flexuosum (L.) Sw.	Lygodiaceae	Farn	Leaf	Intestinal problems. Leaves are cooked and eaten.
Hibiscus rosa sinensis L.	Malvaceae	Rokto joba	Flower	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.
Sida cordifolia L.	Malvaceae	Veola kota (Garo)	Root	Skin diseases. Crushed roots are applied to affected areas.
Tinospora crispa (L.) Hook.f. & Thoms.	Menispermaceae	Guloncho	Stem	Prevention of intestinal disorders. Juice obtained from macerated stems is taken.
Ficus racemosa L.	Moraceae	Jol donga	Leaf	Chicken pox. Crushed leaves are topically applied to the body.
Streblus asper Lour.	Moraceae	Shaora	Leaf	Blood purifier, diarrhea. Juice obtained from macerated leaves is taken.
Ardisia solanacea Roxb.	Myrsinaceae	Tita jam	Fruit	Jaundice, blood purifier. Fruits are taken.
Psidium guajava L.	Myrtaceae	Peyara	Leaf	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.
Averrhoa carambola L.	Oxalidaceae	Kamranga	Fruit	Tooth ache, to prevent oral infections. Fruits are chewed.
Piper longum L.	Piperaceae	Pipul	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.
Saccharum officinarum L.	Poaceae	Aakh	Stem juice	Acidity. Unripe fruit of *Aegle marmelos* is burnt in fire of cow dung and then taken with molasses prepared from sugarcane (*Saccharum officinarum*) juice as remedy for acidity.
Catunaregam spinosa (Thunb.) Tirveng.	Rubiaceae	Mon kata (Garo)	Leaf, fruit	Skin diseases, dysentery. Crushed leaves are topically applied for skin diseases. Fruits are taken for dysentery.
Aegle marmelos (L.) Corr.	Rutaceae	Bel	Leaf, stem, fruit	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. 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 *Aegle marmelos* 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.
Glycosmis pentaphylla (Retz.) Corr.	Rutaceae	Mou dal (Garo)	Root	Pyorrhea, tooth ache. Juice obtained from macerated roots is orally taken.
Zanthoxylum simulans Hance.	Rutaceae	Kata khura	Oil	Vitamin source.
Verbascum chinense (L.) Santapau	Scrophulariaceae	Shial moti	Leaf	Infections from cuts and wounds. Macerated leaves are applied.
Smilax zeylanica L.	Smilacaceae	Shoto naiye (Garo)	Stem	Sexual weakness. Juice obtained from macerated stem is orally taken.
Solanum americanum Mill.	Solanaceae	Jolong kotha (Garo)	Leaf	Gonorrhea, urinary problems. Juice obtained from macerated leaves is taken for gonorrhea. Juice obtained from macerated young leaves is taken for

				urinary problems.
Solanum rudepannum Dunal	Solanaceae	Tit bahor (Garo)	Fruit	Gastric problems, helminthiasis, irregular digestion. Fruits are fried and eaten.
Abroma augusta L.f.	Sterculiaceae	Ulot kombol	Stem	Loss of libido. Juice obtained from macerated stems is orally administered.
Aquilaria agallocha Roxb.	Thymeliaceae	Agor	Oil obtained from distillation of resin	Skin diseases. Oil is topically applied.
Clerodendrum viscosum Vent.	Verbenaceae	Vaitta	Leaf	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.
Zingiber officinale Roscoe	Zingiberaceae	Ada	Rhizome	Headache. Juice obtained from macerated leaves of *Leucas aspera*, leaves of *Andrographis paniculata* and rhizomes of *Zingiber officinale* is mixed and orally taken.

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 *Lannea coromandelica* for jaundice or sap of *Shorea robusta* for stomach disorders and stomach pain. It was observed that formulations of the Kavirajes may constitute one plant part from one plant, combination of more than one plant part from the same plant, as well as a combination of plant parts from different plants. For instance leaves of *Justicia adhatoda* 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 helminthiasis, 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, helminthiasis, 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.

Documentation of 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, can 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.

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