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**Research Article**

## Ethnomedicinal Practices of a Village Folk Medicinal Practitioner in Faridpur District, Bangladesh

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### ABSTRACT

Folk medicine is a unique blend of medicine practiced in Bangladesh, which contains components and ideas of individual practitioners (known as Kavirajes), as well as formulations borrowed from other more systematized forms of traditional medicine like Ayurveda and Unani. Because every Kaviraj follows his or her unique formulations, surveys need to be carried out among as many practitioners as possible to get a comprehensive picture of this form of practice. Kavirajes mainly practice in the villages and small towns, although a good number can be observed in the cities also, whose clients mainly include the poorer residents as well as rural folk who have come to the cities. The objective of the present study was to conduct an ethnomedicinal survey of a folk medicinal practitioner in Dhopakandi village in Faridpur district, Bangladesh. Interviews were conducted of the Kaviraj with the help of a semi-structured questionnaire and the guided field-walk method. The Kaviraj was observed to use a total of 33 medicinal plants distributed into 23 families in his formulations. The formulations were used for treatment of a diverse number of diseases like fever, helminthiasis, sexual disorders, poisoning, gastrointestinal disorders, excessive hair loss, heart disorders, mental disorders, kidney stones, jaundice, respiratory tract disorders, liver disorders, paralysis, skin disorders and pain. Available pharmacological reports on a number of the plant species used by the Kaviraj showed that the Kavirajes' choice of plants can be scientifically validated to quite some extent. This suggests that the plants used by the folk medicinal practitioners for treatment of diseases should not be ignored by the scientific community; instead they can be used for more scientific studies leading to possible discovery of new and effective medicines.

*Keywords:* Ethnomedicine, Kaviraj, Faridpur, Bangladesh

### INTRODUCTION

Folk medicinal practice is a unique form of traditional medicinal practice in Bangladesh, combining elements derived from individual choices with formulations derived from more established traditional medicinal practices of the Indian sub-continent, like Ayurveda and Unani. The folk medicinal practitioners, otherwise known as Kavirajes claim to obtain their formulations (which usually consist of medicinal plants) from dreams, 'gurus', or from earlier generation members of the family. As such, the practice of any individual Kaviraj is unique, for his/her formulations are derived from training, experiments, experiences and perceptions of the individual Kaviraj. Kavirajes usually practice in the rural areas (villages) of

Bangladesh, though substantial numbers can be seen practicing in the cities also. To get a comprehensive picture of the folk medicinal practices and tribal medicinal practices (the latter being more or less akin to folk medicinal practices), it is therefore necessary to survey as many individual Kavirajes and tribal medicinal practitioners as possible. It is to be noted that persons termed as Kavirajes usually practice among the mainstream Bengali-speaking population, while tribal medicinal practitioners may be called by different names according to the tribal language.

Towards documentation of the traditional medicinal practices of Kavirajes and tribal medicinal practitioners, we had been conducting systematic ethnomedicinal surveys among the folk medicinal practitioners of both the mainstream population (Kavirajes), as well as the medicinal practitioners

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within the various tribal population for a number of years [35,39-41,9,18,20,33,34,42-48,1,6-8,17,23,24, 49,50,56,58,11,19,21,27,51-54,57]. Thus far, our studies have clearly demonstrated that the traditional use of particularly medicinal plants is not merely a matter of superstitious beliefs (which some scientists and allopathic doctors believe), but can be shown to be scientifically validated to a quite considerable extent on the basis of available scientific reports on those medicinal plant species.

Documentation of traditional medicinal practices is important not only from the anthropological point of view (for such practices are a component of the total cultural beliefs of any society), but also because most traditional medicinal practices use medicinal plants along with other ingredients like animal parts. As such, a thorough documentation of the medicinal plants used by traditional medicinal practitioners can result in obtaining a comprehensive list of the medicinal flora of the country. Moreover, the medicinal plants, animal parts and other ingredients used can form part of the scientific research for studies on their pharmacological properties, which can form the basis of newer medicines. In fact, many modern drugs have resulted from close observations of healing practices of indigenous communities [4,10,16]. Many allopathic medicines have lost their significances because of development of drug resistance vectors and adverse side-effects. As a result, newer drugs need to be discovered for treatment of many diseases and the sources of this new drugs can be various plants and animals, for only a few of the huge number of plant and animal species has been examined as to their medicinal properties. Towards a more thorough documentation of the folk medicinal practices of Bangladesh, this survey was carried out to document the medicinal plant formulations of a Kaviraj in Dhopakani village in Faridpur district of Bangladesh.

## Materials and Methods

The Kaviraj, M. Morshed Ali, age 86 years practiced in Dhopakandi village of Faridpur district, Bangladesh. He claimed to have been practicing for over 27 years. Informed consent was first obtained

from the Kaviraj. The Kaviraj was apprised as to the nature of our visit and consent obtained to disseminate any information provided both nationally and internationally. Actual interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method of Martin (1995) and Maundu (1995). In this method, the Kaviraj took the interviewers on guided field walks through areas from where he usually collected his medicinal plants, pointed out the plants and described their uses. Plant specimens were photographed and collected on the spot, pressed, dried and brought back for complete identification at the Bangladesh National Herbarium. Voucher specimens were deposited at the Medicinal Plant Collection Wing of the University of Development Alternative. Detailed conversations with the Kaviraj took place in the evening in open-ended conversations where the Kaviraj discussed the medicinal uses of plants in more details.

## Results and Discussion

The Kaviraj was observed to use a total of 33 medicinal plants distributed into 23 families in his formulations. The formulations were used for treatment of a diverse number of diseases like fever, helminthiasis, sexual disorders, poisoning, gastrointestinal disorders, excessive hair loss, heart disorders, mental disorders, kidney stones, jaundice, respiratory tract disorders, liver disorders, paralysis, skin disorders and pain. The Kaviraj also treated diseases in cattle along with diseases in human beings. For instance, the plant *Aristolochia indica*, was used for treatment of indigestion and flatulence in cattle as well as abnormal swelling of abdomen in humans. Mostly, the Kaviraj used one single plant for treatment of one or two diseases. An exception was the treatment of paralysis. For its treatment, the Kaviraj used half handful each of leaves of *Murraya koenigii*, *Lygodium flexuosum*, *Cassia occidentalis*, *Datura metel*, *Phyllanthus reiculatus* and *Glycosmis arborea*, which were mixed together, crushed, warmed and applied to paralyzed areas for 7 days. The mode of administration was also simple, being either oral or topical.

**Table 1:** Medicinal plants and formulations of the Kaviraj.

Serial Number	Scientific Name	Family Name	Local Name	Parts used	Disease, Symptoms, Formulations and Administration
1	<i>Andrographis paniculata</i> Burm. f.	Acanthaceae	Kalomegh, Kalpanath	Leaf	Fever (symptoms: rise in body temperature, heaviness in head), helminthiasis (symptoms: loss of appetite, stomach pain). ½ tea-cup of juice obtained from crushed leaves is taken on an empty stomach for 2-3 days.
2	<i>Achyranthes aspera</i> L.	Amaranthaceae	Bilai hechra	Root	Frequent ejaculation by itself. Roots are washed thoroughly and then crushed to obtain juice. ½ cup of the juice is taken once daily on an empty stomach for 3 weeks.
3	<i>Aerva lanata</i> (L.) A.L. Juss.	Amaranthaceae	Bish jarol	Leaf	Poisoning (symptoms: swelling of parts of body, itches). Macerated leaves are topically applied to affected places for 1 week.

4	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Kata notae	Root	Frequent ejaculation of sperm along with blood. ½ cup of juice obtained from crushed roots is taken orally once daily for 70 days.
5	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Thankuni	Leaf	Dysentery, blood dysentery (symptoms: crams in stomach accompanied by passing of stool, passing of blood with stool). ½ cup of juice obtained from crushed leaves is taken orally once daily for 2 weeks.
6	<i>Aristolochia indica</i> L.	Aristolochiaceae	Ishemul, Ishwarmul	Leaf	Indigestion and flatulence in cattle; abnormal swelling of abdomen in humans. For cattle, 125g juice obtained from crushed leaves is fed; for humans, ¼ cup of leaf juice is taken orally for 3 days.
7	<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	Keshurae	Leaf	Excessive hair loss. Juice obtained from crushed leaves is topically applied to hair 2-3 times daily for 2 weeks.
8	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.	Combretaceae	Arjun	Bark	Heart disorders (symptoms: chest pain, occasional pain in the back of left side). Powdered bark is dried under the sun and then soaked in water. ½ teaspoon of the powder is mixed with 1 glass water and taken twice daily on an empty stomach.
9	<i>Terminalia citrina</i> Roxb. ex. Flem.	Combretaceae	Hortoki	Bark	Flatulence, indigestion (symptoms: burning sensations in the chest). Bark is chewed and orally taken or powdered and soaked in water followed by drinking the suspension. One glass of water along with suspended bark is taken daily on an empty stomach.
10	<i>Ipomoea mauritiana</i> Jacq.	Convolvulaceae	Bhui kumra	Rhizome	Mental disorders (symptoms: feeling of hotness in head, loss of memory, unusual behavior). Rhizome juice is mixed with sesame oil and orally taken thrice daily for 7 days.
11	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	Pathorkuchi	Leaf	Kidney stones (symptoms: pain in back of waist, vomiting). Leaves are washed and then crushed to obtain juice. ½ cup of the juice is taken daily orally for about a month.
12	<i>Dillenia indica</i> L.	Dilleniaceae	Chalta	Fruit	Indigestion, loss of appetite (symptoms: vomiting tendency, vomiting). Fruits are sliced and dried under the sun. Powdered dried fruits are taken orally twice daily.
13	<i>Jatropha curcas</i> L.	Euphorbiaceae	Vella	Root	Jaundice (symptoms: yellowish coloration of hands, legs and eyes, loss of appetite). ½ cup of juice obtained from crushed roots is taken orally once daily for 3 weeks.
14	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Amloki	Fruit	Loss of appetite. Dried powdered fruits are orally taken; alternately, fruits are chewed and taken. Dosage is three fruits per day or 1 teaspoonful of dried fruit powder mixed with water and taken every morning on an empty stomach.
15	<i>Phyllanthus reticulatus</i> Poir.	Euphorbiaceae	Rakha shotki, Korkedi	Leaf	See <i>Murraya koenigii</i> .
16	<i>Cassia occidentalis</i> L.	Fabaceae	Kalo kashundae	Leaf	See <i>Murraya koenigii</i> .
17	<i>Ocimum gratissimum</i> L.	Lamiaceae	Ram tulshi	Leaf	Coughs with chest pain. One cup leaf juice is orally taken with honey once daily for 7 consecutive days.
18	<i>Aloe vera</i> (L.) Burm. f.	Liliaceae	Ghroto komol	Leaf	Liver disorders, bloating. Sherbet is prepared from soft pulp within leaves along with molasses. The sherbet is taken orally on an empty stomach for 2 weeks.
19	<i>Lygodium flexuosum</i> (L.) Sw.	Lygodiaceae	Bhutraaj	Leaf	See <i>Murraya koenigii</i> .
20	<i>Lawsonia inermis</i> L.	Lythraceae	Mindi	Leaf	Excessive hair loss. Macerated leaves are cooked as 'halwa' and taken thrice weekly for two weeks.
21	<i>Tinospora tomentosa</i> Miers	Menispermaceae	Aamgurush	Whole plant	Frequent ejaculation by itself with blood. Whole plant is cut into small pieces and soaked in water. The water is taken on an empty stomach once daily for 7 consecutive days.

22	<i>Nyctanthes arbor tristis</i> L.	Oleaceae	Shefalika	Whole plant without roots	Liver disorders (symptoms: loss of appetite). ½ cup of juice obtained from crushed plant is taken twice daily in the morning and evening.
23	<i>Averrhoa carambola</i> L.	Oxalidaceae	Kamranga	Fruit	Frequent coughs. Juice obtained from crushed fruits is taken orally for 7 days.
24	<i>Piper peepuloides</i> Roxb.	Piperaceae	Papul	Fruit	Coughs, cold (symptoms: frequent coughs, chest pain, respiratory difficulties). ½ teaspoonfuls of dried powdered fruits are taken with a little honey on an empty stomach for 7 days.
25	<i>Glycosmis arborea</i> (Roxb.) DC.	Rutaceae	Motmotae	Leaf	See <i>Murraya koenigii</i> .
26	<i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	Bhut neem	Leaf	Paralysis. Half handful each of leaves of <i>Murraya koenigii</i> , <i>Lygodium flexuosum</i> , <i>Cassia occidentalis</i> , <i>Datura metel</i> , <i>Phyllanthus reiculatus</i> and <i>Glycosmis arborea</i> are mixed together, crushed, warmed and applied to paralyzed areas for 7 days.
27	<i>Datura metel</i> L.	Solanaceae	Kalo dhutra	Leaf	See <i>Murraya koenigii</i> .
28	<i>Physalis minima</i> L.	Solanaceae	Fotfotae	Leaf	Stopping of milk in cows because of hardening of udder. ¼ cup leaf juice is warmed with ¼ cup mustard oil and applied to udders once daily for 3 days.
29	<i>Solanum torvum</i> Sw.	Solanaceae	Tit bonkor	Fruit	Skin diseases (symptoms: itches in various parts of the body, more so in genital regions). Fruits are dried under the sun and powdered. Pills prepared from the powder are taken for 2-3 days.
30	<i>Abroma augusta</i> L.	Sterculiaceae	Urot kombol	Stem	Spermatorrhoea. Top of stems are soaked in water. The water is taken twice daily for 7 days.
31	<i>Pterospermum acerifolium</i> L.	Sterculiaceae	Mochukand o	Flower	Pain in ovary. Juice obtained from crushed flowers is mixed with 2 drops honey. ½ teacup of the mixture is taken twice daily on an empty stomach.
32	<i>Clerodendrum inerme</i> (L.) Gaertn.	Verbenaceae	Bhati	Leaf	Jaundice. ½ cup of leaf juice is taken orally once per day for 7 days.
33	<i>Vitex negundo</i> L.	Verbenaceae	Nishinde	Whole plant without roots	Fever. Juice obtained from whole plant is prepared by crushing whole plant. One tola (local measure: 80 tolas approximate 1 kg) juice is mixed with ½ teacup water and taken on an empty stomach once daily for 3-4 days.

It was of interest to evaluate the use of the medicinal plants by the Kaviraj on the basis of their reported ethnomedicinal and pharmacological activities. Such evaluation points out whether a Kaviraj used a medicinal plant with knowledge of its medicinal properties (not necessarily in the scientific sense but more in its practical aspect), or the Kaviraj selected the medicinal plants on a purely non-scientific basis and which basis can be based on beliefs, dreams, or a perceived similarity of appearance between the plant concerned and the disease treated. Towards evaluating the medicinal plants used, searches on their pharmacological properties were made in data bases like PubMed, SCOPUS and Google Scholar.

*Andrographis paniculata* was used by the Kaviraj for treatment of fever and helminthiasis. In a double-blind controlled study, it has been found that the plant when administered at a dose of 6g per day for 7 days was comparable to relieving symptoms of fever and sore throat [61]. In traditional Indian medicine, the plant is used to treat helminthic infections [25]. *Achyranthes aspera* was used by the

Kaviraj for treatment of uncontrolled ejaculation. The local traditional healers of Western Uttar Pradesh, India use the plant to treat premature ejaculation [28]. *Aerva lanata*, a plant used by the Kaviraj for treatment of poisoning, reportedly had beneficial effects in arsenic poisoning [14]. *Amaranthus spinosus*, another plant used by the Kaviraj for treatment of uncontrolled ejaculation along with passing of blood, is used by local traditional healers in Western Uttar Pradesh, India for treatment of premature ejaculation and spermatorrhoea [28].

*Centella asiatica* was used by the Kaviraj to treat dysentery and blood dysentery. The plant is used by the Rajbangshi and Oraon tribes of North Bengal, India to treat diarrhea and dysentery [32]. The plant is used in Malaysia for treatment of diarrhea, in India for treatment of stomach disorders, in China for treatment of dysentery and summer diarrhea and in Nepal for indigestion [2]. *Aristolochia indica*, used by the Kaviraj for treatment of indigestion and flatulence in cattle and abnormal swelling of abdomen in humans is reportedly used by

tribals of Mayurbhanj district, North Orissa, India for treating constipation and abdominal colic [55]. *Eclipta alba* was used by the Kaviraj to treat hair loss; the plant has been scientifically shown to have potential as a hair growth promoter (Datta et al., 2009). *Terminalia arjuna*, used by the Kaviraj to treat heart disorders, has been evaluated in many studies and found useful in patients with ischemic heart disease, hypertension and heart failure [30].

The clinical efficacy of *Kalanchoe pinnata* in treatment of lithiasis has been shown [13]; the Kaviraj also used the plant for treatment of kidney stones. *Dillenia indica*, used by the Kaviraj for treatment of gastrointestinal problems like indigestion and loss of appetite is reportedly used by the Sonowal Kacharis tribal people of Brahmaputra valley, Assam, India for treatment of dysentery [26]. *Jatropha curcas*, used by the Kaviraj against jaundice, has been shown to have hepatoprotective activity [3]. *Ocimum gratissimum*, used by the Kaviraj for coughs, is also used in traditional medicines of Africa for treatment of coughs [37]. The hepatoprotective effect of processed *Aloe vera* gel has been described [59], a plant used by the Kaviraj against liver disorders. *Nyctanthes arbor tristis* is another plant used by the Kaviraj against liver disorders of which hepatoprotective activity has been described [22].

In Indian traditional medicines, fruits of *Averrhoa carambola* are used for treatment of coughs [15]; the Kaviraj used the fruits for the same purpose. *Piper peepuloides*, used by the Kaviraj for coughs, is also used by the local people of Meghalaya for treatment of coughs [62]. *Solanum torvum* was used by the Kaviraj to treat skin disorders; the plant is also used in Indonesia for the same purpose [60]. *Abroma augusta*, used by the Kaviraj for spermatorrhea, has been shown to increase sperm count, sperm motility and spermatogenesis in rats following administration [36]. Antinociceptive activity has been observed with *Pterospermum acerifolium* [5], a plant used by the Kaviraj for treatment of ovarian pain. The Kaviraj used *Clerodendrum inerme* against jaundice; hepatoprotective activity of the plant has been reported against paracetamol induced hepatic injury in rats [38]. *Vitex negundo* was used by the Kaviraj against fever; the plants' beneficial effect against fever has been reviewed [63].

The available ethnomedicinal and scientific reports clearly establish that the Kaviraj possessed considerable knowledge on medicinal plants and their properties. A consensus in ethnomedicinal uses suggests that the plant has a high potential of yielding useful drugs, while pharmacological activity studies can scientifically validate traditional medicinal uses. We have previously also observed that use of medicinal plants by folk medicinal practitioners can be validated through available scientific reports. The present study provides further

confirmation that folk medicinal practitioners indeed possess knowledge on medicinal plant uses. As such, the plants merit further scientific investigations.

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