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Some plants used in folk medicine in Jhenaidah district

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Abstract

From ancient times, medicinal plants have played a major role in the health-care of human beings through both preventing and curing diseases. Even in recent days when allopathic medicine appears to be prevailing, attention is switching back to medicinal plants and traditional medicines as viable alternatives of allopathic medicine. This is because of adverse effects of allopathic medicines, emergence of new diseases, and development of allopathic drug-resistant vectors. Since folk medicine is one of the important part of traditional health-care system of Bangladesh, the objective of this study was to document the folk medicinal practices of several folk medicinal practitioners (FMPs) in randomly selected villages of Jhenaidah district, Bangladesh. A total number of 12 plants used for therapeutic purposes were obtained from the FMPs, which plants were distributed into 10 families. The plants were used to treat memory loss, gastrointestinal disorders, rheumatism, pain, skin diseases, tumor, fever, vomiting, weakness, acidity, helminthiasis, respiratory difficulties, jaundice, heartburn, bone fracture and as a contraceptive.

Keywords: Medicinal plants, folk medicine, Jhenaidah, Bangladesh

Introduction

Medicinal plants have possibly played a pivotal role in the treatment of diseases since the advent of human beings. It is well known that the great apes use various plants for medicinal purposes^[1, 2], which makes it more probable that early humans did the same also. Since record keeping came into existence (in the form of clay tablets, papyrus, bark), treatises of various forms of traditional medicine came to be written, which includes Ayurveda in India, Unani in the Middle East, Kampo in Japan, and TCM (traditional Chinese medicine) in China^[3]. These treatises and traditional medicinal forms exist to this day and play an integral role in the health-care system of many countries, including developed countries.

Bangladesh can be considered a potpourri of various medicinal systems like allopathy, homeopathy, Ayurveda, Unani, folk medicine, aromatherapy and incantations. Folk medicine is possibly the most widely practiced because folk medicinal practitioners (FMPs) do not need any formal training or registration for practice. FMPs can be found practically in every village, town and city of the country. In our various surveys on FMPs, we have found their practice is mainly phytotherapeutic, diverse as to selection of plants, and although practicing without any formal training, the plants selected for treatment can for the most part be scientifically validated in their therapeutic uses^[4-21]. As such documentation of phytotherapeutic practices of FMPs is important for further research and conservation of medicinal plants. The objective of the present study was to document the plant-based therapeutic practices of several FMPs in Jhenaidah district.

Materials and Methods

The survey was conducted in 2017 with three FMPs, two of them practicing in Gachkulchara village and one practicing in Potahati village in Jhenaidah district, Bangladesh. The FMPs were Gani Master, age 65 years, male, Gachkulchara village; Abul Kasem, male, age 60 years, Potahati village; and Abdul Jalil Mallik, male, age 70 years, Potahati village.

Prior Informed Consent was first obtained from the FMPs. They were thoroughly apprised about our intentions, and the importance of such documentation was explained to them. 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^[22] and Maundu^[23].

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In this method 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. Open-ended interviews were also conducted with the FMPs and the villagers to get a feel of the effectiveness of the FMP's treatment.

Results and Discussion

The three FMPs, in between themselves, used a total of 12 plants distributed into 10 families for treatment. The results are shown in Table 1. In terms of numbers, there were only a few plants. However, the diseases treated included memory loss, gastrointestinal disorders, rheumatism, pain, skin diseases, tumor, fever, vomiting, weakness, acidity, helminthiasis, respiratory difficulties, jaundice, heartburn, and bone fracture. One plant was used as a female contraceptive. No complex formulations were used; only in one case, for treatment of bone fracture, two plants, namely *Cissus quadrangularis* and *Calotropis procera* were used in combination.

Reported pharmacological studies on the plants themselves or their phytochemical constituents suggest that the FMPs, even though not acquainted with the scientific literature, did possess quite extensive knowledge on the pharmacological properties of the plants that they used for treatment. In a review on the plant, it has been pointed out that the rhizomes of *Acorus calamus* (used by the FMPs to increase memory and to treat stomach pain, flatulency, rheumatism, and headache) can relieve stomach cramps and beta-asarone may be the responsible component [24]. In Ayurveda, the rhizomes are used to enhance memory. Analgesic and anti-inflammatory properties have been reported [25], which can be beneficial in rheumatism and headache. Traditionally, the plant *Achyranthes aspera* is used for boils, scabies, skin eruptions and other skin diseases [26]. The FMPs used the plant for skin diseases and to restore appetite. Inhaling the fumes of *Achyranthes aspera* and *Smilax ovalifolia* roots have been suggested to improve appetite [27].

Calotropis procera was used with *Cissus quadrangularis* by the FMPs to treat bone fractures. In folk medicines of Bangladesh, *Cissus quadrangularis* is a well-known plant for treatment of bone fractures [7]; scientific evidence also exists regarding the efficacy of the plant in healing bone fractures

[28-32]. The leaves of *Calotropis procera* were possibly included because they can provide pain relieving effect, which may accompany bone fracture. Analgesic effects of ethanolic extract of leaves has been observed in rats and mice using formalin-induced paw lick, carragennan-induced paw edema, acetic acid-induced writhing, and tail flick tests [33]. *Nerium indicum* has been indicated to be effective against cancer [34], which justifies its use against tumors by the FMPs. However, the use of this plant against fever, vomiting tendency, and as a female contraceptive needs scientific investigations.

Asparagus racemosus reportedly possess gastro-duodenal ulcer protective activity [35], which justifies its use by the FMPs to treat acidity. The plant is considered a female tonic [36], and a health tonic in Ayurveda [37]. *Blumea lacera* was used by the FMPs to treat dysentery, cuts and wounds, and helminthiasis. The anthelmintic activity of the plant has been scientifically validated [38]. The Santal tribe of Bankuria district, West Bengal, India, uses leaves of this plant to treat cuts and wounds to stop bleeding [39]. The analgesic effect of hydroalcoholic extract of *Coccinia grandis* (synonym of *Coccinia cordifolia*) has been reported [40]; the FMPs used the plant to treat headache. The FMPs used *Euphorbia hirta* against diarrhea and dysentery as well as asthma and respiratory difficulties; the plant is used against bronchitis and asthma in Africa; in Angola, it is used against diarrhea and dysentery; leaf extract has been found to be anti-bacterial and effective against some diarrhea and dysentery causing bacteria [41].

Phyllanthus fraternus has been reported to be hepatoprotective in patients with acute viral hepatitis [42]; the FMPs used the plant against jaundice. *Leucas aspera* was used by the FMPs against eczema. In a survey carried out among the tribals of Kolli Hills region of Tamil Nadu, India, the plant was found to be the most used against dermatological disorders [43]. *Tinospora cordifolia* is used in Ayurveda for relieving gastrointestinal problems [44]; the FMPs used it for treating heartburns.

It thus appears that a number of the plants that the FMPs used for treatment have at least preliminary scientific validation for such therapeutic uses. As such, these make the plants a potential source for novel and possibly affordable medicines. If instead of going through all the problems of isolation and identification of the responsible bio-active constituent(s), the formulations of the FMPs can be used, it certainly lessens the cost of production. However, in such cases, it has to be remembered that good manufacturing practices and batch to batch reproducibility has to be maintained

Table 1: Medicinal plants and diseases treated by the FMPs of Jhenaidah district

Serial Number	Scientific Name (English name)	Family Name	Local Name	Parts used	Ailments and mode of medicinal use
1	<i>Acorus calamus</i> L. (Sweet flag)	Acoraceae	Boch	Rhizome	To increase memory. Rhizome juice is orally taken regularly. Stomach pain, flatulency. Rhizome juice is mixed with lukewarm water and orally taken twice daily. Rheumatism. Rhizome paste is topically applied to painful areas. Headache. Rhizome paste or juice is topically applied to forehead. After it dries up, the paste or juice is washed away.
2	<i>Achyranthes aspera</i> L. (Prickly chaff flower)	Amaranthaceae	Apang	Root	Skin disease. Root juice is topically applied. Loss of appetite. Root juice is taken orally with water.
3	<i>Calotropis procera</i> (Ait.)	Apocynaceae	Akond	Leaf	See <i>Cissus quadrangularis</i> .

	Ait.f. (Apple of Sodom)				
4	<i>Nerium indicum</i> Mill. (Oleander)	Apocynaceae	Korobi	Leaf, seed	Tumor, fever, vomiting tendency. Leaves are orally taken. Contraceptive (female). Seeds are orally taken.
5	<i>Asparagus racemosus</i> L. (Shatavari)	Asparagaceae	Shotomuli	Whole plant	To increase strength, appetite stimulant, acidity. Whole plant is orally taken with honey or sugar.
6	<i>Blumea lacera</i> (Burm.f.) DC. (Blumea)	Asteraceae	Kukshima	Leaf	Dysentery. Leaves are chewed and the juice orally taken. Cuts and wounds. Leaf juice is topically applied. Helminthiasis. Leaves are chewed and the juice orally taken twice daily for several consecutive days.
7	<i>Coccinia cordifolia</i> (L.) Cogn. (Ivy gourd)	Cucurbitaceae	Telakucha	Leaf	Respiratory difficulties, headache. Leaf juice is orally taken.
8	<i>Euphorbia hirta</i> L. (Australian asthma herb)	Euphorbiaceae	Dudhia	Leaf, whole plant	Dysentery. Leaves are boiled in water followed by drinking the water. Asthma, respiratory difficulties due to cold. Whole plants are cleaned and thoroughly dried. They are then set on fire and the smoke inhaled. This is done for several consecutive days. Diarrhea. Leaf juice is orally taken for a few days.
9	<i>Phyllanthus fraternus</i> G.L. Webster (Gulf leaf flower)	Euphorbiaceae	Bhui amla	Leaf, whole plant	Jaundice. Clean leaves are made in to a paste and orally taken with honey or sugar (to reduce the bitter taste). Vomiting. Juice obtained from crushed whole plant is orally taken with warm water.
10	<i>Leucas aspera</i> (Willd.) Linn. (Common Leucas)	Lamiaceae	Shet dron	Leaf	Eczema, bronchitis. Leaf juice is topically applied for eczema, and orally taken for bronchitis.
11	<i>Tinospora cordifolia</i> (Willd.) Miers. (Heart-leaved moonseed)	Menispermaceae	Guloncho	Leaf	Heartburn. Leaf juice is orally taken.
12	<i>Cissus quadrangularis</i> L. (Devil's backbone)	Vitaceae	Harjora	Stem	Bone fracture. Paste of stem by itself or along with leaves of <i>Calotropis procera</i> are applied thickly over the fractured area. Pain and pus in ears. Stems are thinly sliced and fried in mustard oil. After cooling, the oil is applied to the ears.

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