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An account of some plant-based folk medicinal remedies in Dinajpur district, Bangladesh

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Abstract

Folk medicine and folk medicinal practitioners (FMPs) constitute an important part of the health-care sector in Bangladesh. FMPs are distinguished not only by their knowledge of medicinal plants but also their apparent success in treatment of many complicated diseases, which are difficult to treat with allopathic medicines. Researchers can benefit greatly from documenting the practices of FMPs towards discovery of new medicines. The objective of this survey was to conduct an ethnomedicinal survey and document the phytotherapeutic practices of three FMPs in Dinajpur district, which is located in the northwestern part of Bangladesh. It was observed that the FMPs used a total of 10 plants distributed into 8 families for treatment. The diseases treated included cancer, hypertension, fever, diabetes, bleeding, pain, eye disorders, respiratory difficulties, heart disorders, liver disorders, rheumatism, constipation, piles, biliary disorders, vomiting with blood, acne, leucorrhoea, weakness, flatulence, hookworm infections, and skin infections.

Keywords: Ethnomedicine, folk medicine, Dinajpur, Bangladesh

Introduction

Phytomedicines have played a role in the treatment of diseases possibly since the advent of human beings. Since the discovery of writing and maintaining records, various civilizations have been found to maintain medical treatises from around 5,000 years ago describing diseases and plant-based therapies. Opium (from latex of *Papaver somniferum*) was used by ancient Sumerians, Egyptians and Greeks for treatment of arthritis, headaches and inducing sleep. Ephedrine (from *Ephedra sinica*) was used by the Chinese physicians for respiratory ailments since 2700 BC ^[1]. This trend has continued and in reality gained in importance in recent years. The emergence of new diseases, drug-resistant vectors, and adverse effects of many synthetic drugs, all are making scientists turn to the plant kingdom as possible sources of new drugs. Ethnomedicinal surveys and documentation of traditional phytotherapeutic practices are the common and elementary pathways to garner knowledge about possible therapeutic properties of any given plant species. This is more so in countries like Bangladesh, where traditional medicinal practices exist in a variety of forms, but with very little careful documentation. This is more so for folk medicinal practitioners (FMPs), who possibly form the largest body of traditional medicinal practitioners in the country with mainly plant-based therapies but also utilizing other materials. To fill up this gap, we had been documenting the medicinal plants of Bangladesh as used by folk medicinal practitioners (FMPs) and tribal medicinal practitioners (TMPs) on a systematic basis ^[2-19]. Since Dinajpur district is an area where not much work has been done among the FMPs, the objective of the present study was to document the phytotherapeutic practices of three FMPs practicing in Dinajpur Town and two villages of the district.

Materials and Methods

The survey was conducted between July to November 2017 among three FMPs practicing in Dinajpur Town and two villages (Boter Hat and Pul Hat). The three areas had three folk medicinal practitioners (FMPs), namely Md. Hannan, Sri Goyeswar Chandra, and Abdul Matin. All three FMPs were male and practiced folk medicine on a regular basis.

Prior Informed Consent was first obtained from the FMPs. They were thoroughly apprised as to the nature of our visit and consent obtained to disseminate any information both nationally and internationally. Actual interviews were conducted in the Bengali language, which was spoken fluently by the FMPs as well as the interviewers.

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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, deposition, and obtaining accession numbers. Voucher specimens were also deposited with the Medicinal Plant Collection Wing of the University of Development Alternative.

Results and Discussion

The FMPs between themselves were observed to use a total of ten plants in their phytotherapeutic practices. The ten plants were distributed into eight families, the families being Apocynaceae, Asteraceae, Combretaceae, Lamiaceae, Moraceae, Sterculiaceae, Thelypteridaceae, and Verbenaceae. The diseases treated with these plants included cancer, hypertension, fever, diabetes, bleeding, pain, eye disorders, respiratory difficulties, heart disorders, liver disorders, rheumatism, constipation, piles, biliary disorders, vomiting with blood, acne, leucorrhoea, weakness, flatulence, hookworm infections, and skin infections.

On most occasions, a plant was used to treat multiple ailments, a typical example being use of fruits and seeds of *Terminalia chebula* for treatment of fever, to improve

eyesight, respiratory difficulties, heart disorders, liver disorders, rheumatism, and constipation. The FMPs also occasionally used different plant parts from a single plant to treat different ailments. For instance, stem, fruit, and gum of *Ficus rumphii*, were used, respectively, to treat biliary disorders, cough, and acne.

Catharanthus roseus was used by the FMPs to treat cancer. Interestingly, the plant is known to be an excellent source for two potent anti-cancer compounds, vincristine and vinblastin ^[22]. *Rauwolfia serpentina*, used by the FMPs to treat hypertension, has been scientifically proven to be beneficial for hypertensive patients ^[23]. The antidiabetic potential of *Gynura procumbens* has also been scientifically validated ^[24]; notably, the FMPs used the plant for the same purpose. *Leucas aspera* reportedly has anti-pyretic and analgesic properties ^[25]; the FMPs also used the plant to treat fever and pain.

The above few examples demonstrate that the FMPs based their practices on sound phytotherapeutic knowledge, and that this knowledge can provide the researchers and scientists a valuable tool for appropriate studies leading to discovery of new drugs. The study also highlights the importance for documentation of medicinal plants and formulations used by the FMPs of Bangladesh. This documentation can also be of aid in conservation of medicinal plants through building public awareness on this issue. It may be pointed out in this context that due to loss of habitat many medicinal plants are becoming rare or endangered, if not downright extinct.

Table 1: Medicinal plants and formulations of the FMPs from Dinajpur district, Bangladesh.

Serial Number	Scientific Name (Accession Number)	Family Name	Local Name	Parts used	Ailments and mode of medicinal use
1	<i>Catharanthus roseus</i> (L.) G. Don (45342)	Apocynaceae	Nayan tara	Leaf	Cancer. Leaves are chewed and taken orally.
2	<i>Rauwolfia serpentina</i> (L.) Kurz (45353)	Apocynaceae	Sharpa gondha	Root	Hypertension, fever. Root juice is orally taken.
3	<i>Gynura procumbens</i> (Lour.) Merr. (45341)	Asteraceae	Anti-diabetics	Whole plant	Diabetes. Juice obtained from crushed whole plant is taken orally.
4	<i>Leucas aspera</i> (Willd.) Link (45348)	Asteraceae	Dulfi	Leaf, root, flower or whole plant	To stop bleeding from external cuts and wounds, pain, fever. Juice obtained from crushed whole plant or plant parts is taken orally.
5	<i>Terminalia chebula</i> Retz. (45352)	Combretaceae	Hortoki	Fruit, seed	Fever, to improve eyesight, respiratory difficulties, heart disorders, liver disorders, rheumatism, constipation. 5.8g of dry fruit and seed powder is taken orally with water twice daily in the morning and night.
6	<i>Leucas indica</i> (L.) Sm. (45343)	Lamiaceae	Dondo kolosh	Root	Piles. Roots are chewed and taken orally.
7	<i>Ficus rumphii</i> Blume (45349)	Moraceae	Pakur	Stem, fruit, gum	Biliary disorders, vomiting with blood. Stem juice is orally taken. Coughs. Fruit juice is orally taken. Acne. Gum is topically applied.
8	<i>Abroma augusta</i> L.f. (45346)	Sterculiaceae	Ulot kolom	Leaf, stem	Leucorrhoea, weakness. Leaf and stem juice is taken orally.
9	<i>Christella dentata</i> (Forssk.) Holttum (45344)	Thelypteridaceae	Dhokia	Leaf	Flatulence. Leaf juice is taken orally at night before meal.
10	<i>Clerodendrum viscosum</i> Vent. (45345)	Verbenaceae	Vati	Leaf	Fever, hookworm infection, diabetes, skin infection. Leaf juice is taken orally in the morning on an empty stomach.

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