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Phytotherapeutic practices of a folk medicinal practitioner in Kishoreganj district, Bangladesh

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Abstract
Folk medicinal practitioners (FMPs) of Bangladesh are traditional medicinal practitioners found throughout Bangladesh and whose main mode of practice is treatment with plants or phytotherapy. Their selection of plants is very diverse, and properly documented, can possibly lead to not only enrichment of knowledge of medicinal plants but also discovery of new drugs. The objective of the present study was to document the phytotherapeutic practices of a FMP from Najir Dighi village in Kishoreganj district, Bangladesh. The FMP was found to use a total of 15 plants distributed in to 15 families in his treatment. The formulations were extremely simple, all formulations being monoherbal. The diseases treated included jaundice, piles, gastrointestinal disorders like diarrhea, gastric trouble, stomach pain and dysentery, cholera, paralysis, hypertension, respiratory tract disorders, pain, snake bite, conjunctivitis, irregular menstruation, fever, leprosy, arthritis, bleeding, vomiting, and inflammation. The manifold uses of the plants strongly suggest that the FMP possessed good knowledge of medicinal properties of plants or plant parts and which can benefit people with various types of diseases.

Keywords: Ethnomedicine, folk medicine, Kishoreganj, Bangladesh

Introduction
From fossilized records, the history of use of plants for treatment of diseases by humans goes back to over 60,000 years ago [1, 2]. In various traditional medicinal systems present in Bangladesh like Ayurveda, Unani or folk and tribal medicine, plants still form the mainstay of treatment. This is because every plant species form within themselves a variety of phytochemicals or secondary metabolites for multiple purposes related to stress or defense. Each phytochemical in turn possess pharmacological properties, which may range from the beneficial (like therapeutic or preventive) to poisonous. Over millennia, human beings and particularly medicinal practitioners have learnt to use plants and plant parts for disease treatment.

Among the various forms of traditional medicinal systems in Bangladesh, we are more interested in folk and tribal medicines, because the folk medicinal practitioners (FMPs) can be any person, there is no formal requirement for their training or registration, they possibly form the most numerous group of traditional medicine practitioners, and consequently their treatment methods even when using only plants can be very diverse. In our various surveys among FMPs of different regions of Bangladesh [3-20], our general observation has been that FMPs can possess considerable knowledge on the medicinal properties of plants, this knowledge can run and be enriched generationally, and as such, prove useful in the discovery of new drugs and for treatment of emerging and existing drug-resistant diseases. FMPs, who practice in the 86,000 villages of Bangladesh, with each village generally having at least one FMP, are more diverse in their plant selection for treatment of a specific disease, and can be more specialized in treatment of one or more diseases. As such, the objective of the present survey was to document the phytotherapeutic practices of a FMP practicing at Najir Dighi village in Kishoreganj district, Bangladesh.

Materials and Methods
The survey was conducted in 2017 with one FMP practicing in Najir Dighi village, which is located within Kuliarchar Upajila (sub-district) in Kishoreganj district, Bangladesh. The FMP was named Mohammad Din Islam, male, age 62 years and had been practicing for the last 25 years. He mentioned that his phytotherapeutic information was obtained from his father.

Prior Informed Consent was first obtained from the FMP. He was thoroughly apprised as to the nature of our visit and consent obtained to disseminate any information including his name both nationally and internationally. Actual interviews were conducted in the Bengali language, which was spoken fluently by the FMP 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 [21] and Maundu [22]. In this method the FMP took the interviewers on guided field-walks through areas from where he collected his 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 FMP and the villagers to get a feel of the effectiveness of the FMP's treatment.

Results and Discussion

The FMP used a total of 15 plants distributed into 15 families for treatment of diverse diseases, which included jaundice, piles, gastrointestinal disorders like diarrhea, gastric trouble, stomach pain and dysentery, cholera, paralysis, hypertension, respiratory tract disorders, pain, snake bite, conjunctivitis, irregular menstruation, fever, leprosy, arthritis, bleeding, vomiting, and inflammation. The results are shown in Table 1. Interestingly, the FMP did not use any complex formulations; rather, juice or paste of whole plant or plant part was administered orally or topically. The same plant part was used for treatment of more than one disease. For instance, leaves of *Cynodon dactylon* were used to stop bleeding, blood purification, and acidity. Leaves of *Punica granatum* were used to treat jaundice, liver disorders, and vomiting. Leaves of *Solanum melongena* were used to stop bleeding, and inflammation. Overall, one can conclude that whatever be the means for procuring this phytotherapeutic knowledge, the FMP knew enough about different therapeutic properties of the same plant or plant part.

The simplicity of the formulation(s), if on further testing is confirmed to be accurate in their therapeutic values, can provide the user with an affordable and available means of relief from at least some diseases. This is of enormous significance to people living under poverty level income or living in remote areas. To scientists, the medicinal plants of FMPs are an opportunity to discover new drugs. Many modern drugs have been discovered from plants; the list includes atropine, artemisinin, quinine, vinblastine and vincristine, to name only a selective few [23]. Modern medicine is yet to solve the problems of diabetes, cancer, cardiovascular disorders and a host of other diseases with medicines, which can result in complete cure or use non-invasive procedures. Traditional medicines have the advantage of being used over hundreds and thousands of years. This in effect means that what we understand as clinical trials have been completed with success; otherwise both FMPs and their formulations would have disappeared a long time ago. The present survey can be of importance in this manner through stimulating scientific interest.

Table 1: Medicinal plants and formulations of the FMP from Kishoreganj district, Bangladesh.

Serial Number	Scientific Name	Family Name	Local Name	Parts used	Ailments and mode of medicinal use
1	*Achyranthes aspera* L.	Amaranthaceae	Ufud ledda	Leaf	Jaundice. Crushed leaves are applied to the body topically. Piles. Leaf juice is taken orally.
2	*Centella asiatica* (L.) Urb.	Apiaceae	Thankuni	Leaf	Cholera, dysentery, stomach pain. Leaf juice is taken orally.
3	*Mikania cordata* (Burm.f.) B.L. Rob.	Asteraceae	Germany lota	Leaf	Gastric disorders. Leaf juice is taken orally.
4	*Cleome rutidosperma* DC.	Capparaceae	Lota kosturi	Leaf	Paralysis. Leaf juice is taken orally.
5	*Cuscuta reflexa* Roxb.	Convolvulaceae	Shorno lota	Leaf	Hypertension, diarrhea, jaundice. Leaf juice is taken orally.
6	*Bryophyllum pinnatum* (Lam.) Oken	Crassulaceae	Pathorkuchi	Leaf	Coughs, asthma, dysentery. Leaf juice is taken orally.
7	*Ricinus communis* L.	Euphorbiaceae	Bherenda	Leaf, seed	Joint pain, dysentery. Juice obtained from crushed leaf and seed is taken orally.
8	*Leucas aspera* (Willd.) Link	Lamiaceae	Ufud ledda	Whole plant, leaf	Snake bite. Crushed leaf is applied topically. Conjunctivitis. Leaf juice is applied topically.
9	*Abroma augusta* L.f.	Malvaceae	Ulatkambal	Petiole	Dysentery, irregular menstruation. Aqueous extract of petiole is taken orally.
10	*Azadirachta indica* A. Juss.	Meliaceae	Neem	Bark	Fever, leprosy, arthritis. Aqueous extract of bark obtained by soaking bark in water is taken orally.
11	*Tinospora crispa* Miers.	Menispermaceae	Poddo guloncho	Root	Arthritis, jaundice. Root juice is taken orally.
12	*Boerhaavia diffusa* L.	Nyctaginaceae	Punarnava	Leaf	Jaundice, pain relief. Leaf juice is taken orally.
13	*Cynodon dactylon* (L.) Pers.	Poaceae	Durba ghash	Leaf	To stop bleeding. Leaf juice is applied topically. Blood purification, acidity. Leaf juice is taken orally.
14	*Punica granatum* L.	Punicaceae	Dalim	Leaf	Jaundice, liver disorders, vomiting. Leaf juice is taken orally.
15	*Solanum melongena* L.	Solanaceae	Baegun	Leaf	To stop bleeding, inflammation. Crushed leaves are topically applied.

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