



Therapeutic uses of plants by a folk medicinal practitioner in Narsingdi district, Bangladesh

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ABSTRACT

Documentation of the medicinal practices of a folk medicinal practitioner (FMP) was carried out in Tultuli village at Narsingdi district, Bangladesh. The FMP was observed to use a total of 31 plants distributed into 22 families in his medicinal practice. Whole plants, various parts of these plants or combination of different plant parts were used to treat ailments like fever, helminthiasis, physical weakness, gastrointestinal disorders, respiratory tract disorders, malaria, blood purification, cuts and wounds, skin disorders, asthma, sexual diseases, hypertension, heart disorders, diseases of eye, nose or throat, pain, insomnia, jaundice, piles, obesity, burning sensations in hands or feet, leucorrhoea, and diabetes. The plants used to treat malaria, obesity, hypertension, sexual diseases and diabetes are of special interest for they can lead to new drug discoveries for treatment of these diseases.

Key words: Folk medicine, Narsingdi, medicinal plants, Bangladesh

INTRODUCTION

Narsingdi district is situated in the central part of Bangladesh and falls within Dhaka Division. The district is located about 50 kilometers to the northeast of Dhaka, the capital city of Bangladesh. The district still possesses a rural atmosphere and is comparatively under-developed regarding industries and other infrastructures. Folk medicinal practitioners play a vital role in the primary health-care of the mostly rural and semi-urban people of the district.

Towards adequate documentation of the medicinal plants of the country, we had been conducting surveys among the folk and tribal medicinal practitioners for a number of years [1-27]. The objective of the present study was to document the medicinal plants used for therapeutic purposes by a folk medicinal practitioner (FMP) practicing in Raipura and Tultuli villages in Narsingdi district.

EXPERIMENTAL SECTION

Prior Informed Consent was obtained from the FMP (Shafi Mandal, male, age 52 years), for the survey. Actual interviews were carried out with the help of a semi-structured questionnaire and the guided field-walk method of Martin [28] and Maundu [29]. 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. Interviews were carried out in the Bengali language, which was spoken alike by the FMP and the interviewers. Plant specimens were photographed, collected, pressed and dried and identified at the Bangladesh National Herbarium.

RESULTS AND DISCUSSION

The FMP was observed to use a total of 31 plants distributed into 22 families in his medicinal formulations for treatment of various ailments. The results are shown in Table 1.

The FMP was observed to use a total of 31 plants distributed into 22 families in his medicinal practice. Whole plants, various parts of these plants or combination of different plant parts were used to treat ailments like fever, helminthiasis, physical weakness, gastrointestinal disorders, respiratory tract disorders, malaria, blood purification, cuts and wounds, skin disorders, asthma, sexual diseases, hypertension, heart disorders, diseases of eye, nose or throat, pain, insomnia, jaundice, piles, obesity, burning sensations in hands or feet, leucorrhea, and diabetes. For the most part, plants were used in monoherbal preparations, i.e. a single plant or plant part was used for treatment of a single or multiple diseases.

Medicinal plants or plant parts may contain a vast array of phytochemicals with diverse pharmacological properties. These properties can be used by somebody knowledgeable in the therapeutic action of plants for treatment of different diseases. That the FMP possessed a good knowledge of these properties is adequately demonstrated in his use of a single plant for treatment of diverse diseases. For instance, the leaves of *Andrographis paniculata* were used by the FMP for treatment of fever, helminthiasis, physical weakness, and loss of appetite. The four diverse therapeutic uses of a single plant part from the same plant is indicative of the medicinal plant knowledge of the folk medicinal practitioners of Bangladesh, and as such, deserves more scientific attention. The same applies to the leaves of *Justicia adhatoda*, which were used by the FMP for treatment of coughs, asthma, tuberculosis, chest disorders, dysentery, malaria, mucus, and as a blood purifier.

The plants used to treat malaria, obesity, hypertension, sexual diseases and diabetes are of special interest. Malaria vector has developed resistance to most of the existing anti-malarial drugs, and new drugs from new sources are a necessity to combat this widely prevalent disease throughout the world. The same applies to sexually transmitted diseases like gonorrhea, for the bacteria causing this disease has also developed resistance to most of the prevalent antibiotics. Obesity, diabetes, hypertension are leading problems in the modern world and singly or in combination they can also give rise to cardiovascular disorders. These disorders cannot be completely cured by allopathic medicines, most of which are costly and cannot be afforded by the rural and urban slum population of Bangladesh. From that view point, any scientific research leading to discovery of new drugs from the plants used by the FMP to treat these disorders will be beneficial to the world's population.

It is interesting that the leaves of the plant, namely *Abroma augusta*, used by the FMP to treat diabetes, has been reported to lower blood glucose levels in hyperglycemic mice [30]. The therapeutic potential of *Terminalia arjuna* in various cardiovascular disorders including hypertension has been reviewed [31]; the FMP used the bark of the plant to treat hypertension and sexual diseases. The *in vitro* effect of *Terminalia arjuna* against *Neisseria gonorrhoeae*, the causative agent for the sexually transmitted disease gonorrhea, has also been reported [32]. It can be seen from the instances cited that the FMP's use of various plants is quite validated scientifically. The use of *Dalbergia sissoo* for treatment of obesity is unique to the FMP. The plant is common in Bangladesh, and if a relatively cheap and abundant source for treatment of obesity by this plant can be confirmed scientifically, that can lead to many obese persons leading a more normal life and reduce their risks for developing diabetes, hypertension or other cardiovascular disorders. The same applies to the other plants used by the FMP, for if scientifically validated, they can form a cheap source of new medicines.

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

Serial Number	Scientific Name	Family Name	Local Name	Parts used	Ailments and mode of medicinal use
1	<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees.	Acanthaceae	Kalomegh	Leaf	Fever, helminthiasis, physical weakness, loss of appetite. One teaspoon leaf juice is mixed with honey and taken orally for 4-5 days.
2	<i>Justicia adhatoda</i> L.	Acanthaceae	Bashok	Leaf	Coughs, asthma, tuberculosis, chest disorders, dysentery, malaria, mucus, blood purifier. 1-2 spoonfuls of leaf juice are taken with honey orally daily. See <i>Azadirachta indica</i> .
3	<i>Aerva sanguinolenta</i> (L.) Blume	Amaranthaceae	Iodine pata	Leaf	Bleeding from external cuts and wounds. Leaf paste is applied topically.
4	<i>Hemidesmus indicus</i> R.Br.	Apocynaceae	Anantamul	Leaf	Scabies, acne, inflammation, loss of appetite. One teaspoon leaf juice is taken orally daily.
5	<i>Nerium oleander</i> L.	Apocynaceae	Korobi	Flower	Asthma, skin disorders. Flower juice is taken daily orally.
6	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Shotomuli	Whole plant	Dysentery, to increase strength, to increase urine outflow, energizer. Whole plant juice is taken orally with milk for 5-7 days.
7	<i>Mikania cordata</i> (Burm.f.) B.L. Robinson	Asteraceae	Mekani pata	Leaf	Bleeding from external cuts and wounds. Leaf paste is applied topically.
8	<i>Tagetes erecta</i> L.	Asteraceae	Ganda ful	Leaf	To stop bleeding from external cuts and wounds. Juice from crushed leaves is applied to cuts and wounds.
9	<i>Heliotropium indicum</i> L.	Boraginaceae	Hatishur	Leaf	Asthma, coughs. Leaf juice is taken orally daily.
10	<i>Terminalia arjuna</i> Wight & Arn.	Combretaceae	Arjun	Bark	Skin and sexual diseases, hypertension, asthma, dysentery, to aid digestion. Bark is soaked in water overnight and the water is taken orally the following morning. This is continued for a month.
11	<i>Terminalia bellirica</i> Roxb.	Combretaceae	Bohera	Fruit	Heart disorders, diseases of eyes, nose or throat, helminthiasis, insomnia. Fruits are soaked in water for a day and night and the water is strained and taken orally the following morning.
12	<i>Terminalia chebula</i> Retz.	Combretaceae	Horitoki	Fruit	Hypertension, constipation, weakness, toothache, stomach pain. Fruits are soaked in water for a day. The water is strained and taken orally. Powdered fruit is applied to base of tooth to alleviate toothache.
13	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Swarna lota	Stem	Jaundice, muscle pain. Stem juice of <i>Cuscuta reflexa</i> is taken with stem juice of <i>Saccharum officinarum</i> and taken orally.
14	<i>Euphorbia pulcherrima</i> Willd. Ex Klotzsch	Euphorbiaceae	Sid pata	Leaf	Coughs, mucus. Leaf juice of <i>Euphorbia pulcherrima</i> is mixed with leaf juice of <i>Ocimum tenuiflorum</i> and taken orally with honey. Dose is ½ teaspoonfuls for children under 5 years age for 1-3 days and one teaspoon for adults for 1-3 days.
15	<i>Arachis hypogaea</i> L.	Fabaceae	Cheena badam	Nut	To keep heart healthy. Nuts are chewed and taken orally every day.
16	<i>Dalbergia sissoo</i> Roxb. ex DC.	Fabaceae	Sissoo	Leaf	Vomiting, piles, obesity. 1-2 spoonfuls of leaf juice are taken with cow milk for 2-3 days.
17	<i>Mimosa pudica</i> L.	Fabaceae	Lojjaboti	Leaf	Piles, burning sensations in hands and feet. Leaf juice is taken orally with cow milk daily.
18	<i>Tamarindus indica</i> L.	Fabaceae	Tetul	Fruit	Hypertension, heart disorders, obesity, to reduce blood cholesterol, to aid digestion, loss of appetite. Fruits are taken orally with table salt.
19	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Tulshi	Leaf	See <i>Euphorbia pulcherrima</i> .
20	<i>Allium sativum</i> L.	Liliaceae	Roshun	Clove	Body pain. Paste of clove is warmed in mustard oil and applied topically to painful areas.
21	<i>Michelia champaca</i> L.	Magnoliaceae	Golden champa	Leaf	Abdominal pain, indigestion. Leaf juice is taken orally with honey.
22	<i>Hibiscus rosa sinensis</i> L.	Malvaceae	Joba	Flower	To blacken hair. 2-3 flowers are crushed in lightly warmed coconut oil and applied to scalp overnight.
23	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Neem	Leaf	Bactericidal. Leaves of <i>Azadirachta indica</i> , <i>Justicia adhatoda</i> and <i>Clerodendrum viscosum</i> are boiled in water followed by taking a bath in the water.
24	<i>Averrhoa carambola</i> L.	Oxalidaceae	Kamranga	Leaf, fruit	Jaundice. Fruits are eaten every day. Alternately, leaf juice is taken orally.
25	<i>Emblica officinalis</i> Gaertn.	Phyllanthaceae	Amloki	Fruit, leaf	Tooth disorders, stomach disorders, coughs, mucus. Fruits and leaves are either chewed or crushed and the juice taken orally.
26	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Durba ghash	Leaf	To stop bleeding from external cuts and wounds. Leaf paste is topically applied.
27	<i>Saccharum officinarum</i> L.	Poaceae	Aakh	Stem	See <i>Cuscuta reflexa</i> .
28	<i>Mimusops elengi</i> L.	Sapotaceae	Bokul	Flower	Headache. Dried and powdered flowers are inhaled through the nose.
29	<i>Atropa belladonna</i> L.	Solanaceae	Belladonna, Bish kantali	Leaf	Asthma, coughs, piles. Leaf juice is taken orally daily.
30	<i>Abroma augusta</i> L.	Sterculiaceae	Ulot kombol	Stem, root	Leucorrhea, gonorrhoea, diabetes, skin diseases, abscess. Stem juice and root powder is taken orally with a glass of water twice daily for 3-7 days.
31	<i>Clerodendrum viscosum</i> Vent	Verbenaceae	Ghatu pata	Leaf	See <i>Azadirachta indica</i> .

CONCLUSION

The plants used by the FMP for treatment of diverse diseases deserve scientific attention towards possible discovery of newer drugs.

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