

A Survey of Medicinal Plants Used by Traditional Healers and Indigenous People of Shariatpur District, Bangladesh

Moynul Islam^{1*}, Mohammad Sajid Ali Howlader², Md. Salah Uddin³

1. Department of Botany, University of Dhaka, Dhaka-1000, Bangladesh.

2. Department of Biological and Environmental Science, University of Jyväskylä, P.O. Box 35, FI-40014, Finland.

3. Nature Conservation Network-NCN, Dhaka, Bangladesh.

*Corresponding author: Moynul Islam, E-mail: m.neloi@yahoo.com

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ABSTRACT

Shariatpur district is an administrative district in Bangladesh, which includes six sub-districts of Bangladesh. Shariatpur district is surrounded by Padma, Meghna and Arial Khan rivers from three sides. This district contains many Chars (Riverine islands). An ethnobotanical survey was conducted among the traditional healers and indigenous people of Shariatpur district resulted in the finding of 25 plants distributed into 17 families. Various plants were used for the treatment of ailments like diabetes, respiratory disorders (coughs, mucus), fever, sexual disorders (gonorrhoea, loss of libido), gastrointestinal disorders (dysentery, diarrhoea, indigestion), vomiting, skin diseases (eczema, rash, herpes, acne), gum diseases, high blood pressure, piles, small pox, chicken pox, itch, bronchitis, asthma, febrile convulsion, dehydration, scabies, stomach pain, snake bite, insect bite, fresh cuts and wound, memory weakness and for blood purification.

Keyword: Medicinal Plants, Traditional healers, Indigenous people, Shariatpur District, Bangladesh

INTRODUCTION

The affinity between plants and people is studied in ethnobotany, a field centering on the indigenous knowledge on how the plants are used and managed for the benefits of mankind [1-4]. Especially medicinal use of plants are being popular for healing from different types of diseases [5-10] since 2500 years ago [7]. The traditional uses of those medicinal plants in health-care practices among the rural communities provide the basis for natural drug discovery development [6, 9, 11, 12]. According to the World Health Organization (WHO), about 4 billion people in developing countries not only believe in the healing properties of plant species but also use them habitually [13]. With the modern civilization, traditional knowledge about medicinal plants turns such an increasingly fragmented knowledge, interrupted knowledge transmission from generation to generation [14, 15]. Contrast of South Asia, Bangladesh has very less effort to document the indigenous knowledge about medicinal use of plants [16-32]. Shariatpur district remains untouched for the ethnobotanical study. Therefore, an ethnobotanical survey of medicinal plants used by the traditional healers and indigenous people in Shariatpur, an area of 1181 sq. km. (Fig. 1) was conducted in order to conserve the information regarding traditional uses of medicinal plants. Herein we present our findings in details.

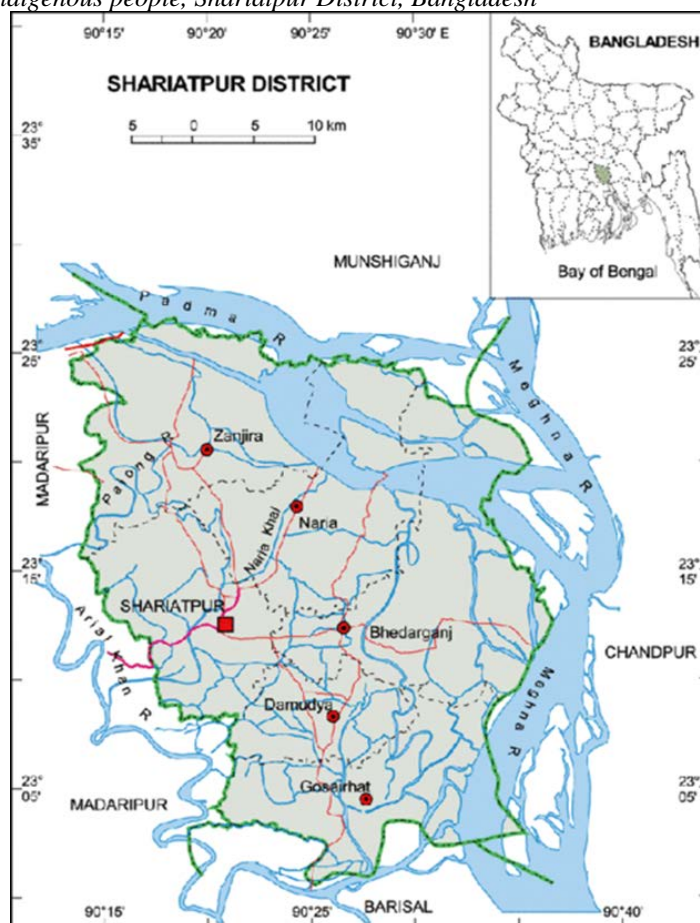


Fig. 1: Location map of Shariatpur District, Bangladesh.

MATERIALS AND METHODS

Plant samples (mature plant and seedlings) were collected from Shariatpur during November 2019 to February 2020. Plant samples have been collected using herbarium techniques from each study site for the identification of plant up to species level. Interviews were conducted with the help of a semi structured

questionnaire and the guided field-walk method [33, 34]. In this method, one or more traditional healers took the interviewers on guided field-walks through areas from where they collected their medicinal plants. Plants were pointed out to the interviewers along with provision of local names and description of their uses. Plant specimens as pointed out by the traditional healers were collected on the spot, dried, and brought to Government Titumir College Herbarium for identification.

RESULTS

A substantial section of the population of Bangladesh is poor and more than one third of the total population of 160 million people lives below the poverty line. The poorer section of the population resides mostly in the rural areas. The rural population in addition suffer from proper access to health-care facilities and are not always in a position to afford the costs of allopathic treatment. They therefore rely on traditional healers for treatment of their various ailments. Traditional healers rely on administration of medicinal plants either orally or topically for treatment of diseases. Each traditional healer has his unique repertoire of medicinal plants, which is closely guarded and usually passed onto an immediate member of the family in the successive generation.

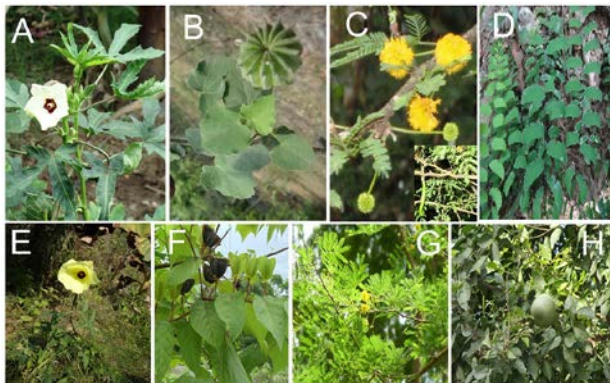


Fig. 2: A, *Abelmoschus esculentus* (L.) Moench. ; B, *Abutilon indicum* (L.) Sweet. ; C, *Acacia farnasiana* (L.) Willd. ; D, *Adiantum philippense* L. ; E, *Abelmoschus moschatus* Medik ; F, *Abroma augusta* (L.) L.f. ; G, *Acacia nilotica*(L.) Del. ; H, *Aegle marmelos* (L.) Corr. Serr.

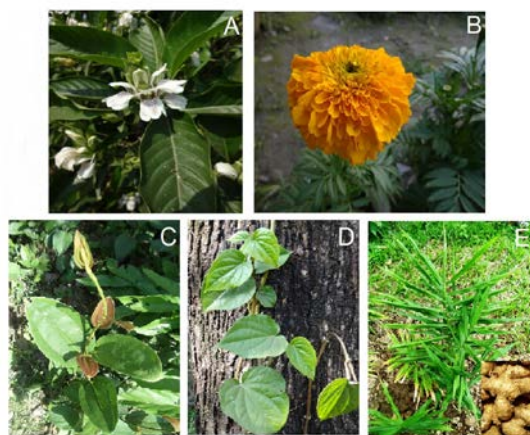


Fig. 3: A, *Justicia adhatoda* L. ; B, *Tagetes erecta* L. ; C, *Smilax zeylanica* L. ; D, *Piper betel* L. ; E, *Zingiber officinale* Roscoe.

The objective of the present study was to conduct a survey on medicinal plant usage among selected traditional healers and indigenous people of Shariatpur district which resulted in the finding of 25 plants distributed into 17 families (Table 1, 2 &

Fig. 2, 3, 4, 5).

Gastrointestinal disorders were treated with 7 plants. These were followed by respiratory disorders like coughs and mucus, which were treated with 3 plants. Sexual disorders were treated with 2 plants, skin diseases with 7 plants, asthma with 3 plants, fresh cuts and wounds with 3 plants.



Fig. 4: A, *Albizia lebbek* (L.) Benth. ; B, *Albizia procera* (Roxb.) Benth. ; C, *Allium cepa* L. ; D, *Ananas comosus* (L.) Merr. ; E, *Azadirachta indica* A. Juss. ; F, *Centella asiatica* (L.) Urb. ; G, *Curcuma longa* L. ; H, *Cynodon dactylon* L. ; I, *Allamanda cathartica* L.

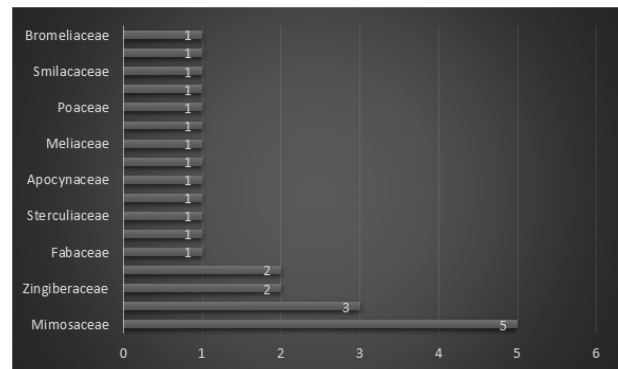


Fig. 5: Families of the ethnomedicinal plants with their numbers.

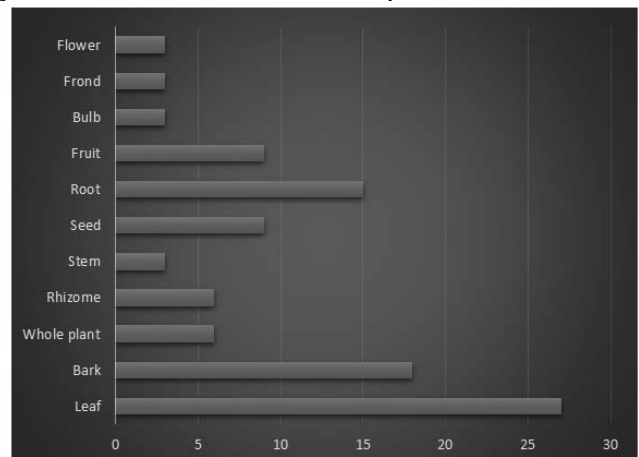


Fig. 6: Plant parts used in folk medicine preparation.

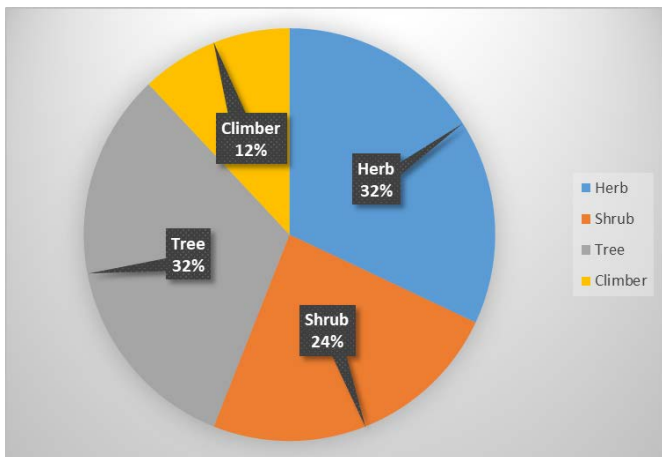


Fig. 7: Percentage of life form (plant habit) used by the traditional healers and indigenous people of Shariatpur district.

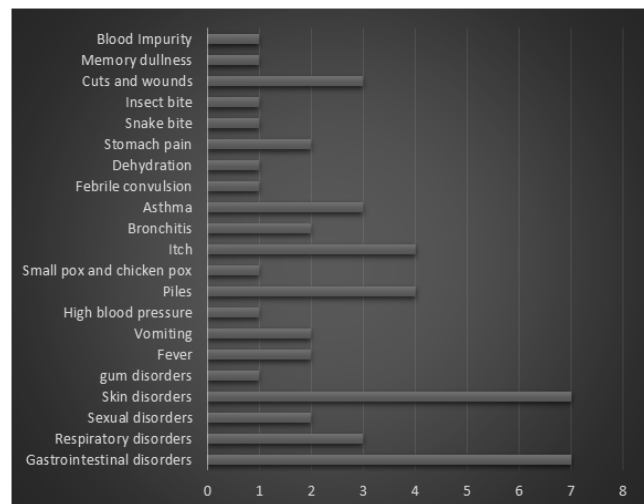


Fig. 8: Numbers of the medicinal plant species used for various diseases.

Table 1: Medicinal plants used by the traditional healers and indigenous people of Shariatpur district.

S/N	Scientific name	Family name	Local name	Parts used	Uses
1	<i>Abelmoschus esculentus</i> (L.) Moench	Malvaceae	Vendi	Fruit	Boiled fruits are used to treat diarrhea, dysentery and stomach pain.
2	<i>Abelmoschus moschatus</i> Medik	Malvaceae	Jonglidheros	Seed	Seeds along with raw milk used to cure itch and skin rash.
3	<i>Abroma augusta</i> (L.)L.f.	Sterculiaceae	Ulotkombo l	Root	Root bark of the plant mixed with <i>Saraca assoca</i> bark powder and boiled in water, and then the decoction is taken to control high blood pressure.
4	<i>Abrus precatorius</i> L.	Fabaceae	Kunch	Seed, root	Seeds of the plant are used to treat dysentery. Powder prepared from the dried roots of the plant is taken with raw milk after adding little amount of honey to control vomiting.
5	<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	Huchra	Root	Juice extracted from roots of the plant is advised to take for the treatment of gonorrhoea and old piles.
6	<i>Acacia farnesiana</i> (L.) Willd	Mimosaceae	Petibabla	Bark	Bark powder along with mastered oil is useful for itch. The juice extracted from the bark of the plant is taken with honey for bronchitis treatment.
7	<i>Acacia nilotica</i> (L.) Del	Mimosaceae	Babla	Bark	Bark powder is taken with water for cough, bronchitis, cholera, dysentery and piles treatment.
8	<i>Acronychia pedunculata</i> (L.) Miq.	Rutaceae	Ban jamir	Leaf	The leaves of the plant are used as remedy for small pox and chicken pox.
9	<i>Adenanthera pavonina</i> L.	Mimosaceae	Rktakanchan	Seed, root	Seed powder is used in cholera. Juice extracted from roots of the plant is taken with milk for vomiting.
10	<i>Justicia adhatoda</i> L.	Acanthaceae	Basak	Root, bark, leaf	Root, bark and leaf juice are used to treat cough, asthma and bleeding piles.
11	<i>Adiantum philippense</i> L.	Adiantaceae	Kalijhant	Fronde	A mixture made from frond paste of the fern, honey and water, then it is taken to treat febrile convulsion and fever.
12	<i>Aegle marmelos</i> (L.) Corr. Serr.	Rutaceae	Bel	Fruit, leaf	Juice prepared from fruit pulp with water and sugar is taken for diarrhea, cholera, dysentery and dehydration treatment. The leaves of the plant fried with butter and it is taken after adding little amount of sugar for brain booster.
13	<i>Albizia lebbeck</i> (L.)	Mimosaceae	Sirish	Bark,	Bark is used to treat skin diseases, piles, itch and

	Benth.			leaf and flower	diarrhea. Leaves and flowers of the plant are used in asthma.
14	<i>Albizia procera</i> (Roxb.) Benth.	Mimosaceae	Silkoroi	Bark	Bark of the plant is boiled in water and it advised to having a bath for scabies treatment.
15	<i>Allamanda cathartica</i> L.	Apocynaceae	Malatilata	Root	A paste made with the roots of the plant is applied to the biting place for the treatment of snake bite.
16	<i>Allium cepa</i> L.	Liliaceae	Piaj	Bulb	Bulb is used in cough, asthma, body pain and insect bites.
17	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Neem	Leaf	For gum diseases, powder obtained from dried leaves is applied to base of tooth. For acne treatment crushed leaves are applied as poultice over acne affected areas for 1 or 2 weeks. For blood purification juice extracted from the pounded leaves are taken once a day for a week.
18	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Thankuni	Whole plant	Juice obtained from macerated whole plant is taken orally every morning on an empty stomach to cure indigestion, flatulence and diarrhea.
19	<i>Curcuma longa</i> L.	Zingiberaceae	Holud	Rhizome	Paste prepared from rhizomes of the plant and leaves of the <i>Azadirachta indica</i> is applied to treat skin disease like scabies, itch, skin irritation, eczema and acne.
20	<i>Cyndon dactylon</i> L.	Poaceae	DubbaGhash	Leaf	Crushed leaves are applied on fresh cuts and wounds to stop bleeding.
21	<i>Piper betle</i> L.	Piperaceae	Paan	Leaf	Crushed leaves are applied to stop bleeding from cutting wounds. A paste made with the leaves of the plant is applied twice a day for a week to treat skin diseases like scabies and herpes.
22	<i>Smilax zeylanica</i> L.	Smilacaceae	Kumarilota	Stem	Juice obtained from stem is taken orally for gonorrhea, loss of libido and diabetes.
23	<i>Tagetes erecta</i> L.	Asteraceae	Gadaphul	Leaf	Pounded leaves are applied over fresh cuts to stop bleeding. Raw leaves are rubbed with spit by hand and then massaged into face to cure acne.
24	<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Ada	Rhizome	Juice obtained from crushed rhizome is taken orally for cough and cold.
25	<i>Ananas comosus</i> (L.)Merr.	Bromeliaceae	Anarosh	Fruit	Juice obtained from young fruits are taken for mucus and fever.

Table 2: Number of life form (plant habit) used by the traditional healers and indigenous people of shariatpur district.

17	Bromeliaceae	1
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S/N	Family	Number of species
1	Mimosaceae	5
2	Malvaceae	3
3	Zingiberaceae	2
4	Rutaceae	2
5	Fabaceae	1
6	Acanthaceae	1
7	Sterculiaceae	1
8	Adiantaceae	1
9	Apocynaceae	1
10	Liliaceae	1
11	Meliaceae	1
12	Apiaceae	1
13	Poaceae	1
14	Piperaceae	1
15	Smilacaceae	1
16	Asteraceae	1

Table 3: Percent use of whole plant or plant parts by the traditional healers and indigenous people of Shariatpur district.

S/N	Plant Part	Percent Use (%)
1	Leaf	27
2	Bark	18
3	Whole plant	6
4	Rhizome	6
5	Stem	3
6	Seed	9
7	Root	15
8	Fruit	9
9	Bulb	3
10	Fron	3
11	Flower	3

Table 4: Number of the medicinal plant species used for various diseases.

S/N	Disease Name	Number of plant species
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1	Gastrointestinal disorders	7
2	Respiratory disorders	3
3	Sexual disorders	2
4	Skin disorders	7
5	gum disorders	1
6	Fever	2
7	Vomiting	2
8	High blood pressure	1
9	Piles	4
10	Small pox and chicken pox	1
11	Itch	4
12	Bronchitis	2
13	Asthma	3
14	Febrile convulsion	1
15	Dehydration	1
16	Stomach pain	2
17	Snake bite	1
18	Insect bite	1
19	Fresh cuts and wounds	3
20	Memory dullness	1
21	Blood Impurity	1

The various plant parts used included whole plants, leaves, stems, roots, barks, flowers, fruits, and seeds. Table 3 and figure 6 displays the results on medicinal plant parts used to treat human ailments and figure 7 displays the Percentage of life form (plant habit) used by the traditional healers and indigenous people of Shariatpur. The traditional healers and locals of Shariatpur used several different types of preparation for a particular plant or plant part. In total, 50 uses of whole plants or plant parts were reported for the 25 species collected in the present survey (Table 4 & Fig. 8).

DISCUSSION

Studies on the traditional medicinal uses of medicinal plants are important from the scientific point of view in that it enables rapid scientific studies towards finding and development of newer medicine from centuries old practical use-derived knowledge of medicinal plants. In the present study, it was observed that a considerable number of plants on which scientific studies have been conducted are validated in their uses by the traditional healers. It may be pointed out in this respect, that not all medicinal plants reported by the traditional healers have been studied yet; in fact, scientific studies on most plants remain preliminary at the best and there is an enormous potential for conducting further scientific experiments regarding their pharmacological activities and their phytochemical constituents. Doubtlessly, more studies have the probability of validating the uses of more medicinal plants reported in the present survey. The second aspect that is of concern is that most medicinal plants are rapidly becoming endangered in their wild habitat. Serious efforts need to be made for their conservation and rapid scientific studies, before they become highly endangered or totally extinct. It is hoped that this ethnobotanical survey shall lead to wider public and Governmental recognition [35-38].

CONCLUSION AND RECOMMENDATION

The present paper aims to document the traditional knowledge of the indigenous people and the traditional healers of the study area on the use of medicinal plant species in Shariatpur district. No study has been reported earlier about the medicinal plants used by the inhabitants of Shariatpur district, Bangladesh and therefore this is the first comprehensive attempt on the topic. Medicinal uses of some species are discussed in this paper. It can

be concluded that the indigenous people of study area have very good knowledge on the use of medicinal plants. But such knowledge of medicinal plants is restricted to a few persons. Therefore it is necessary that suitable requirements are needed in order to protect the traditional knowledge. There should be more and more surveys and researches like this to conserve the traditional knowledge of the indigenous people from all the other parts of the country.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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