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Traditional Medicinal Plants Used in the Treatment of Important Human Diseases of Joypurhat District, Bangladesh

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ABSTRACT
This article focuses on medicinal plants in the treatment of important human diseases by Santal community at the village Abdullahpur of Joypurhat district of Bangladesh. A total of 32 medicinal plants belonging to 21 families and 30 genera were recorded. Habit analysis shows that herbs, shrubs, climbers and trees are represented by 12, 6, 3 and 12 species, respectively. For each species scientific name, local name, family, habit, mode of uses and part(s) used are provided. This detailed information will be helpful for the pharmacognosist, botanist, ethno-botanist and pharmacologist for the collection and identification of the plant for their research work and isolation of plant products benefitting human health.

Keywords : Medicinal plants, Treatment, Human diseases, Joypurhat, Bangladesh

INTRODUCTION

Plants have provided man with all his needs in terms of shelter, clothing, food, flavors and fragrances. Plants have formed the basis of system among traditional medicine which has given rise to some important drugs still in use today. Many ancient nations have awakened to the importance of herbal medicine which brings more cures (Ashur, 1986). The existence and use of plants to treat diseases are as old as man. Man's dependence on plant has in no way decreased, yet there are comprehensive documentations of the plants, exploited for their medicinal uses in some parts of the plants such as leaves, stem and root. The decoctions of these plants are used in the treatment of some diseases such as urinary problems, diabetes, asthma, stroke, stomachache, hypertension, diarrhea and wounds (Anely et al., 2007).
Even today, traditional medicine is still the predominant means of health care in developing countries where about 80% of their total population depends on it for their well being (Busmann et al., 2006). Plants are the basis for the development of modern drugs and medicinal plants have been used for many years in daily life to treat disease all over the world (WHO 1991, Patil et al. 2011). However, the knowledge of medicinal plant is rapidly dwindling due to the influence of Western lifestyle, reducing in number of generations to carry on the use of plant species in traditional medicine which has increased the interest throughout the world (Oliver, 2005). World Health

Organization estimates that 70% of populations from many countries are using traditional of folk medicine to cure various ailments (WHO 1991).

Over the past two decades several medicinal and ethno-botanical studies in Bangladesh have been carried out [1], [3], [5], [8], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60]. The article focused on the traditional medicinal practices used for the treatment of asthma, diuretic, jaundice, piles, rheumatism and vomiting at the village Abdullahpur of Joypurhat district, Bangladesh.

MATERIALS AND METHOD

a. Study area

Akkelpur is an Upazilla of Joypurhat District in the Division of Rajshahi, Bangladesh. Akkelpur is located at 24°58′30″N 89°01′15″E 24.9750°N 89.0208°E with a total area of 139.47 km². It is the smallest Upazilla in Joypurhat Zila. As of the 1991 Bangladesh census, Akkelpur has a population of 126,046, with It has 24,475 units of household as of the 1991 Census. Males constitute 52.9% of the population, and females 47.1%. This Upazilla's eighteen up population is 68033. Akkelpur has an average literacy rate of 34% (7+ years), and the national average of 32.4% literate. The annual rainfall is 1350mm. Temperature of the area is low in January varies from 9.0°C to 14.1°C. From February an increasing trend of temperature is found up to April and thereafter temperature start to decline. In April temperature varies from 22.6°C to 36.9°C. The mean relative humidity is found to be low in March (65%) and high in July-September (88-89%) [6].

b. Ethno-botanical Survey

In the present survey, a total of 33 plant species belonging to 30 genera and 21 families were recorded. A total of ten field trips were made for documentation. During the field interview, the information was noted in the documentation data sheet. All the information regarding plant species, biological forms, habitat, local names and uses was documented. Medicinal information was obtained through informal interviews following semi-structured from knowledgeable person's particularly local Kabiraj/Herbalists and elderly people. Plant specimens were collected with flowers and fruits and processed using standard herbarium techniques [4]. The specimens were identified consulting with the experts, by comparing herbarium specimens and available literatures [2], [10], [14], [16] and [17]. The voucher specimens are stored at Rajshahi University Herbarium (RUH) for future reference.

RESULTS AND DISCUSSION

In the present survey, a total of 32 plant species belonging to 30 genera and 24 families were recorded (Table 1). Out of these plants species, 11 (34.37%) belonged to herbs, 13 (40.62%) trees, 6 (18.75%) shrubs, and 2 (6.25%) climbers (Figure 1). For each species scientific name, local name, family, habit, mode of uses and part(s) used are provided. The most frequently used species for the treatment of different diseases are *Aegle marmelos* (L.) Correa, *Allium cepa* L., *Andrographis paniculata* Nees., *Ananas comosus* (L.) Merr., *Azadirachta indica* A. Juss., *Carica papaya* L., *Centella asiatica* (L.) Urban, *Clerodendrum viscosum* Vent., *Justicia gendarussa* L., *Kalanchoe pinnata* (Lamk.) Pers., *Momordica charantia* L., *Tamarindus indica* L., *Terminalia belerica* Roxb., *Vitex negundo* L. and *Zizyphus mauritiana* Lamk.

Use of plant parts as medicine shows variation (Table 2). Leaves (45.45%) are the leading part used in a majority of medicinal plants followed by 15.15% root, 3.03% bark, 6.06% seed, 3.03% whole plant, 3.03% stem, 3.03% bulb, 3.03% latex and 27.27% Fruits. Distribution of medicinal plant species in the families shows variation (Table 1). Each of Solanaceae and Combretaceae is represented by 3 species. A single species in each was recorded by 11 families while two species in each was recorded by 8 families. The survey has also recorded 6 categories of uses of 33 medicinal plants (Fig. 2). This is the indication of rich knowledge of medicinal uses of plants by the Santhals in the study area. Among them, 5 (15.15%) species were used to cure asthma, 9 (27.27%) species for each of diuretic, 5 (15.15%) species for piles, 7 (21.21%) species for rheumatism, 6 (18.18%) species for jaundice and 7 (21.21%) species for worm. The survey indicated that the common medicinal plant families in the study area are Acanthaceae, Amaranthaceae, Arecaceae, Averrhoaceae, Arecaceae, Bromeliaceae, Combretaceae, Cucurbitaceae, Euphorbiaceae, Fabaceae, Lamiaceae, Liliaceae, Meliaceae, Moraceae, Rutaceae and Solanaceae. This finding of common medicinal plant families in the study is in agreement with [9], [12], [13] and [61].

Table 1: List of traditional medicinal plants used in the Treatment of Important Human Diseases of Joypurhat District, Bangladesh

S/N	Scientific name	Local name	Family name	Habit	Parts used	Mode of use
1	*Aegle marmelos* (L.) Correa	Bel	Rutaceae	Tree	Fruit	Ripe fruits are used in indigestion.
2	*Allium cepa* L.	Piaj	Liliaceae	Herb	Bulb	Juice of bulb is used in headache.
3	*Andrographis paniculata* Nees.	Kalomegh	Acanthaceae	Herb	Leaf	Juice of leaves mixed with salt and water used in helminthiasis.
4	*Ananas comosus* (L.) Merr.	Anaros	Bromeliaceae	Herb	Fruit	Ripe fruit is used helminthiasis.
5	*Azadirachta indica* A. Juss.	Neem	Meliaceae	Tree	Leaf	Juice made from young leaves mixed with salt and water used in helminthiasis. Leaves are used in chickenpox.
6	*Cajanus cajan* (L.) Millsp.	Arhar	Fabaceae	Shrub	Leaf	Decoction of leaves is used in cattle dyspepsia.
7	*Carica papaya* L.	Papaya	Caricaceae	Shrub	Fruit	Ripe fruits are used in indigestion.
8	*Centella asiatica* (L.) Urban	Thankuni	Apiaceae	Herb	Leaf	Paste made from young leaves is used in headache.
9	*Citrus grandis* (L.) Osb.	Jambura	Rutaceae	Tree	Fruit	Juice made from ripe fruit is used in anaemia.
10	*Cissus quadrangularis* Wall.	Harzora	Vitaceae	Climber	Stem	Paste made from the stem barks are used in bone fracture.
11	*Clerodendrum viscosum* Vent.	Bhant	Verbenaceae	Herb	Leaf	Juices made from leaves are used in dyspepsia.
12	*Erythrina*	Madar	Fabaceae	Tree	Leaf	Juice made from leaves is used in

	variegata L.					toothache.
13	*Justicia gendarussa* L.	Jagathmadan	Acanthaceae	Herb	Leaf	Paste made from leaves is used in bone fracture.
14	*Kalanchoe pinnata* (Lamk.) Pers.	Patharkuchi	Crassulaceae	Herb	Leaf	Paste of leaves is used in fracture.
15	*Lawsonia inermis* L.	Mehedi	Lythraceae	Shrub	Leaf	Paste made from leaves is used in burning sensation.
16	*Mangifera indica* L.	Am	Anacardiaceae	Tree	Leaf	Decoction of young leaves is used in toothache.
17	*Moringa oleifera* Lamk.	Sogina	Moringaceae	Tree	Fruit	Fruits are used in chickenpox.
18	*Momordica charantia* L.	Korola	Cucurbitaceae	Climber	Leaf	Juice made from leaves is used in chickenpox.
19	*Musa paradisiaca* L.	Kala	Musaceae	Shrub	Stem	Sap of the central cylindrical stem of the fruited plants is used in blood pressure.
20	*Oxalis corniculata* L.	Amrul	Oxalidaceae	Herb	Leaf	Juice made from leaves is used in anaemia.
21	*Psidium guajava* (L.) Bat.	Piyara	Myrtaceae	Tree	Leaf	Decoction of leaves is used in toothache.
22	*Phyllanthus emblica* L.	Amlaki	Euphorbiaceae	Tree	Fruit	Ripe fruits are used in burning sensation and indigestion.
23	*Punica granatum* L.	Dalim	Punicaceae	Shrub	Fruit	Juice of fruits is used in anaemia.
24	*Rauvolfia serpentina* Benth.	Sarpagandha	Apocynaceae	Herb	Root	Juice made from roots is used in blood pressure and heart disease.
25	*Ricinus communis* L.	Rendri	Euphorbiaceae	Shrub	Leaf	Paste made from leaves is used in headache.
26	*Solanum nigrum* L.	Kakmachi	Solanaceae	Herb	Fruit	Juice made from green fruits is used in heart disease.
27	*Senna sophera* L.	Kalkasunda	Fabaceae	Herb	Leaf, Root	Decoction of leaves and roots are used in dyspepsia.
28	*Tamarindus indica* L.	Tentul	Fabaceae	Tree	Leaf, Fruit	Juice of leaves is used in heart disease. Ripe fruit pulps are used in burning sensation.
29	*Terminalia arjuna* (Roxb.) Wight & Arn.	Arjun	Combretaceae	Tree	Bark, Leaf	Juice made from bark mixed with water used in blood pressure. Dust made from dry shoot bark mixed with water used in heart disease. Leaf soaked in water over night in burning sensation.

30	*Terminalia belerica* Roxb.	Bohera	Combretaceae	Tree	Fruit	Fruits are used in burning sensation.
31	*Terminalia chebula* Retz.	Haritaki	Combretaceae	Tree	Fruit	Ripe fruits are used in indigestion.
32	*Zizyphus mauritiana* Lamk.	Boroi	Rhamnaceae	Tree	Leaf	Paste made from young leaves is used in headache.

Figure 1. Analysis of the data based on habit showed that leading medicinal plants species.

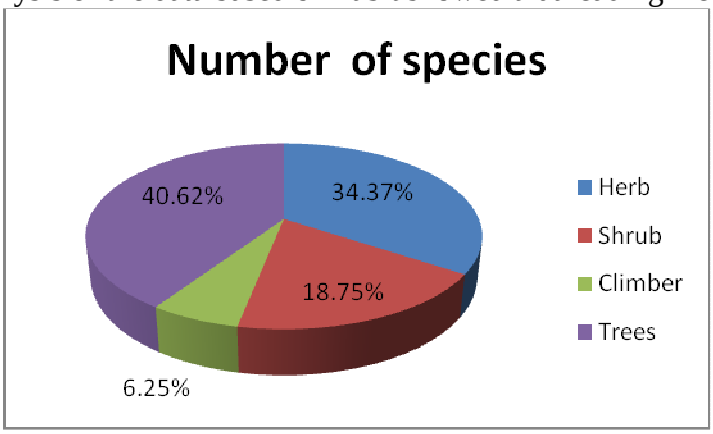


Figure 2. Number of plant parts used for medicinal purpose.

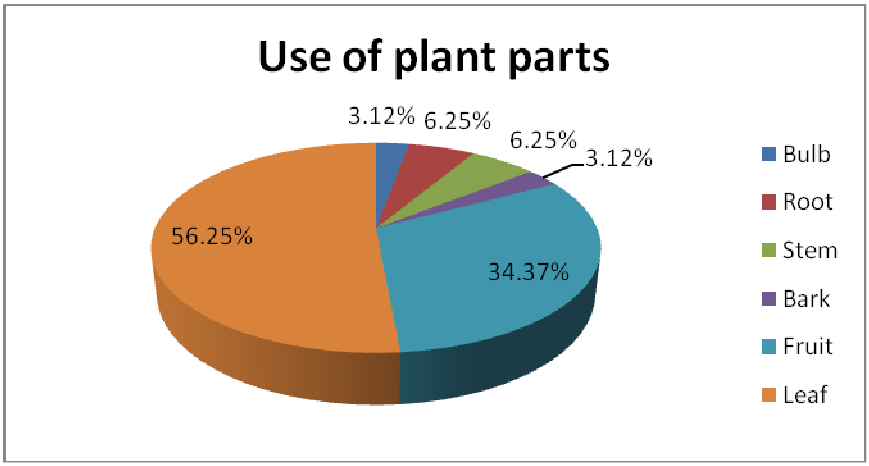
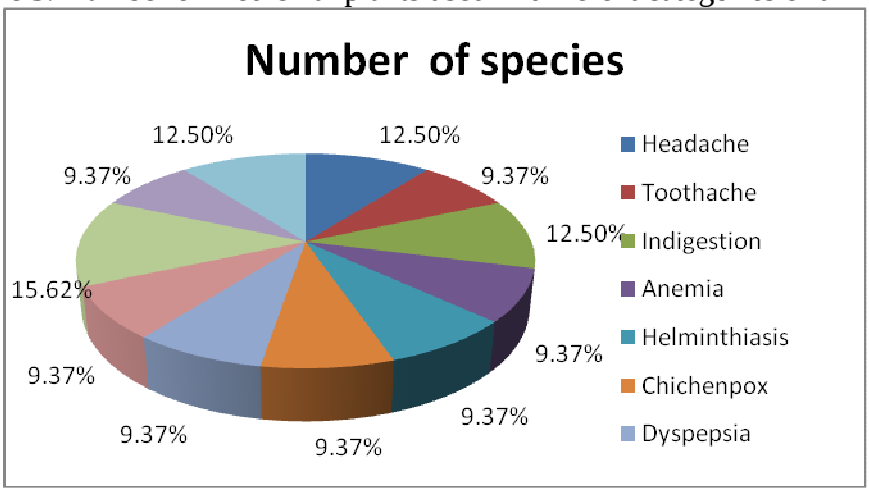


Figure 3. Number of medicinal plants used in different categories of ailments.



CONCLUSION

The present findings are the first record of ethno-medicinal survey of traditional medicine practices for the treatment of eleven important human diseases at the village Abdullahpur under Akkelpur Upazilla of Joypurhat District of Bangladesh using standard research protocols. A total of 32 plant species under 30 genera of 24 families have been documented which are used for the treatment of 11 important human diseases. The present study may be a preliminary contribution to the medicinal knowledge of this area using standard research methods, focusing on medicinal plants and their local uses for the healthcare. This healthcare knowledge transmitted orally from one generation to generation. The study also suggested that the present information on medicinal plants by the Santals may be used for botanical, ethnobiological and pharmacological research in future for the development of new sources of drugs.

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