Ethno-medicinal Practices for the Treatment of Asthma, Diuretic, Jaundice, Piles, Rheumatism and Vomiting at the Village Abdullahpur under Akkelpur Upazilla of Joypurhat District, Bangladesh

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***Abstract*— An ethno-medicinal study was conducted from July 2013 to June 2014 to investigation the uses of medicinal plants by Santhal community at the village Abdullahpur of Joypurhat district of Bangladesh. This article focuses on the treatment of asthma, diuretic, jaundice, piles, rheumatism and vomiting. The present paper reported 33 medicinal plants belonging to 21 families and 30 genera. 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.**

***Index Terms*— Ethno-medicine, Santhal community, indigenous healthcare, Joypurhat, Bangladesh**

I. INTRODUCTION

Many living groups of people, having diversified ethnic history of rituals and performance, which are more or less isolated from modern world and are closely associated with their ambient vegetation is the emporia of ethno botanical research [15]. Ethno-botany term was coined by John William Harshberger in the 1980. Ethno-botany is the study of relationship between plants and people: From 'ethno'-study of people and '-botany'- study of plants. Ethno-botany is considered as a branch of ethno-biology. Ethno-botany studies the complex relationships between (uses of) plants and cultures. The focus of ethno-botany is on how plants have been or are used, managed and perceived in human societies and includes plants used for food, medicine, divination, cosmetics, dyeing, and textiles, for building, tools, currency, clothing, rituals and social life [7].

Ethno-botany, in its totality, is virtually and old field with new dimension of research. And if this field is investigated thoroughly and systematically, it will yield results of great value missing the ethnologists, archaeologists, anthropologists, plant-geographers, ethno-botanists, botanists and linguists and ultimately to pharmacologists and phytochemists. It will appear to be a bridge between botany and medicinal plants, but in fact it is much more. It starts as step before ever botany in the sense supplies the 'idea' and the basic material for botanical research and study. It then takes us to the usefulness of medicinal plants. It goes a step further to help us in the application of the knowledge about the medicinal plants among the primitive people by rapport through the medicine men [11].

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.

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II. METHODOLOGY

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.

III. Results and Discussion

In the present survey, a total of 33 plant species belonging to 30 genera and 21 families were recorded (Table 1). Out of these plants species, 12 (36.36%) belonged to herbs, 12 (36.36%) trees, 3 (9.09%) shrubs, and 6 (18.18%) climbers (Fig. 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 *Achyranthes aspera* L., *Aloe vera* L., *Ananas comosus* (L.) Merr., *Artocarpus heterophyllus* Lamk., *Azadirachta indica* A. Juss., *Borassus flabellifer* L., *Clerodendrum viscosum* Vent., *Datura metel* L., *Feronia limonia* (L.) Swingle, *Justicia adhatoda* Nees., *Kalanchoe pinnata* (Lamk.) Pers., *Momordica charantia* L., *Ricinus communis* L., *Terminalia belerica* Roxb. and *Vitex negundo* L.

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 medicinal plants and their use in Asthma, Diuretic, Jaundice, Piles, Rheumatism and Vomiting at the Village Abdullahpur under Akkelpur Upazilla of Joypurhat District, Bangladesh

S/N	Scientific name	Local name	Family	Habit	Parts used	Mode of use
1	*Achyranthes aspera* L.	Apang	Amaranthaceae	Herb	Root	Juice of root is used in diuretic.
2	*Aloe vera* L.	Ghritakumari	Aloeaceae	Climber	Leaf	It leaf mucilage is used in piles.
3	*Allium sativum* L.	Rashun	Liliaceae	Herb	Bulb	Juice of bulb is used in rheumatism and piles.
4	*Amaranthus spinosus* L.	Kantanotey	Amaranthaceae	Herb	Whole plant	Juice made from whole plant is used in asthma.
5	*Ananas comosus* (L.) Merr.	Anaros	Bromeliaceae	Herb	Fruit	Ripe fruit is used in worm and diuretic.
6	*Argemone mexicana* L.	Sialkanta	Papaveraceae	Herb	Stem, root	Curry made from of stems is used in jaundice. Juice made from roots is used in diuretic.
7	*Artocarpus heterophyllus* Lamk.	Kathal	Moraceae	Tree	Leaf	Juice made from young leaves is used in asthma.
8	*Asparagus racemosus* L.	Satamuli	Liliaceae	Climber	Root	Juice made from the tuberous roots is used in jaundice.
9	*Averrhoa carambola* L.	Kamranga	Averrhoaceae	Tree	Fruit	Fruit is also eaten a good remedy for bleeding piles and jaundice.
10	*Azadirachta indica* A. Juss.	Neem	Meliaceae	Tree	Leaf	Juice made from young leaves mixed with water of boil rice used in worm.
11	*Borassus flabellifer* L.	Tal	Arecaceae	Tree	Fruit	Pulp of unripe fruit is used in diuretic.
12	*Cajanus cajan* (L.) Millsp.	Arhar	Fabaceae	Shrub	Leaf	Juice made from young leaves is used in jaundice.
13	*Calotropis procera* R.Br.	Akanda	Asclepiadaceae	Shrub	Leaf	Extract of leaves is used in piles.
14	*Clerodendrum viscosum* Vent.	Bhant	Verbenaceae	Herb	Leaf	Juices made from leaves are used in worm and vomiting.
15	*Cocos nucifera* L.	Narikel	Arecaceae	Tree	Root	Juice of roots is used in diuretic.
16	*Datura metel* L.	Dhutra	Solanaceae	Shrub	Leaf	Pastes made from leaves are used in rheumatism. Cigarette made from it leaves are smoked in asthma.

17	*Feronia limonia* (L.) Swingle	Kathbel	Rutaceae	Tree	Leaf, fruit	Juice made from leaves is used in vomiting. Fruit pulp is used in diuretic.
18	*Ficus recemosa* L.	Jogadumur	Moraceae	Tree	Latex	Latex is used in piles.
19	*Glycosmis pentaphylla* Corr.	Datmajan	Rutaceae	Shrub	Leaf	Juice of leaves is used in jaundice.
20	*Justicia adhatoda* Nees.	Basak	Acanthaceae	Herb	Leaf, bark	Juice made from bark and leaves are used in worm and vomiting. Juice made from young leaves is used in asthma.
21	*Justicia gendarussa* L.	Jagathmadan	Acanthaceae	Herb	Leaf	Juice made from leaves is used in asthma.
22	*Kalanchoe pinnata* (Lamk.) Pers.	Patharkuchi	Crassulaceae	Herb	Leaf	Juice made from young leaves is used in diuretic.
23	*Leucas aspera* L.	Setadron	Lamiaceae	Herb	Leaf	Juice made from young leaves is used in worm.
24	*Momordica charantia* L.	Korola	Cucurbitaceae	Climber	Leaf	Juice made from leaves is used in rheumatism.
25	*Psidium guajava* (L.) Bat.	Piyara	Myrtaceae	Tree	Fruit	Young fruits are used in worm.
26	*Phyllanthus emblica* L.	Amlaki	Euphorbiaceae	Tree	Fruit	Ripe fruits are used in burning vomiting. Dried fruits are used in jaundice.
27	*Physalis minima* L.	Kapalphutki	Solanaceae	Herb	Root	Juice made from roots is used in diuretic.
28	*Ricinus communis* L.	Rendri	Euphorbiaceae	Shrub	Seed	The oil extracted from the seeds is used in rheumatism.
29	*Solanum nigrum* L.	Kakmachi	Solanaceae	Herb	Fruit	Juice made from green fruits is used in diuretic.
30	*Terminalia arjuna* (Roxb.) Wight & Arn.	Arjun	Combretaceae	Tree	Fruit	Unripe fruits are used in worm.
31	*Terminalia belerica* Roxb.	Bohera	Combretaceae	Tree	Seed	The oil extracted from the seeds is used in rheumatism.
32	*Terminalia chebula* Retz.	Haritaki	Combretaceae	Tree	Fruit	Unripe fruits are used in rheumatism.
33	*Vitex negundo* L.	Neshinda	Lamiaceae	Shrub	Leaf	Paste of leaves is used in rheumatism.

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

S/N	Name of plant parts	Use of plant parts	Percentage (%)	Total number of species
1	Bulb	1	3.03%	33
2	Whole plant	1	3.03%	33
3	Root	5	15.15%	33
4	Stem	1	3.03%	33
5	Bark	1	3.03%	33
6	Fruit	9	27.27%	33
7	Seed	2	6.06%	33
8	Leaf	15	45.45%	33
9	Latex	1	3.03%	33

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

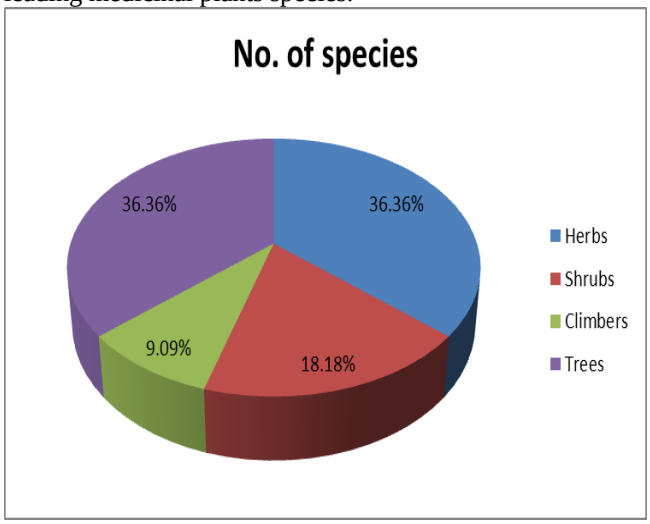
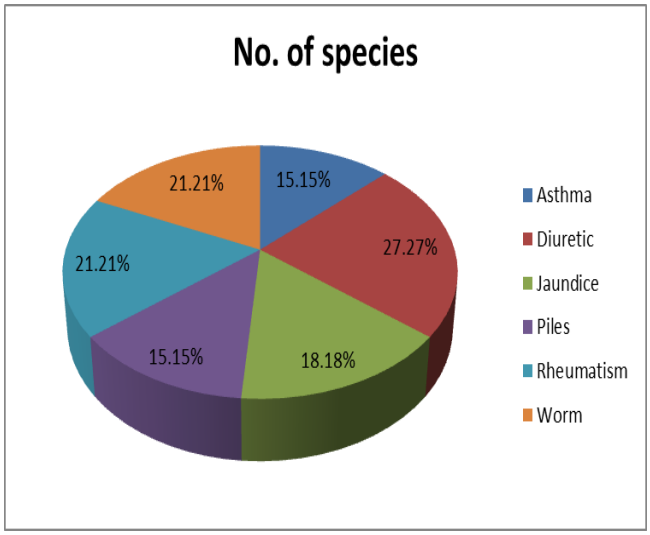


Fig.2. Number of medicinal plants used in different categories of ailments.



IV. Conclusions

The present findings are the first record of ethno-medicinal survey of traditional medicine practices for the treatment of asthma, diuretic, jaundice, piles, rheumatism and vomiting at the village Abdullahpur under Akkelpur Upazilla of Joypurhat District of Bangladesh using standard research protocols. A total of 33 plant species under 30 genera of 21 families have been documented which are used for the treatment of 6 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 Santhals may be used for botanical and pharmacological research in future for the development of new sources of drugs.

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