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

A.H.M. Mahbubur Rahman

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.

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).

#### 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

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

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

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 Santals may be used for botanical and pharmacological research in future for the development of new sources of drugs.

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VI. REFERENCES


Dr. A. H. M. Mahbubur Rahman was born in Adamdighi of Bogra district, Bangladesh on 31st August, 1975. He passed S. S. C. examination from Adamdighi I. P. J. High School, Bogra in 1990 and H. S. C. examination from New Govt. Degree College, Rajshahi in 1992. Dr. Rahman as a research scholar and as a teacher of very high standard. Dr. Rahman was a student of Department of Botany, Rajshahi University in 2005 in the field of Plant Taxonomy. He joined as a Lecturer in this department and started research work on Plant Taxonomy under the supervision of Professor Dr. A.K.M. Rafiul Islam and submitted a thesis for M. Phil. Degree in 2003 and obtained the degree in 2004. Dr. Rahman completed his Ph.D. degree from Rajshahi University, Rajshahi in 2009 in the field of Plant Taxonomy. He joined as a Lecturer in the Department of Botany, University of Rajshahi in 2004 and was promoted to Assistant Professor in 2009. At present he is an Associate Professor in this department. His research experience is 16 years and teaching experience is 10 years. He has guided 32 B.Sc. (Hons.) research fellows, 6 M.S. research fellows and 1 Ph.D. research Fellow. He is an Editorial Board Member of 17 International Journals. He has published 47 research articles in different national and international referred journals and published 4 online books from Lambert Academic Publishing (LAP), Germany. His specialization is Plant Taxonomy, Ethno-botany, Biosystematics and Molecular Plant Systematics.