



Medicinal Plants Used for Diabetes Treatment by the Different Tribes in Bongaigaon District, North East India

S.I. Bhuyan

Department of Botany, University of Science & Technology Meghalaya, Meghalaya, India

ABSTRACT: Northeast India is the store house of medicinal plants which are naturally grown and available in the forest. Indigenous people of this region have a deep belief in their native folklore medicines for remedies and they rely exclusively on their own herbal cure. Present study was conducted in Boitamary block of Bongaigaon districts, Assam. The study comprises 27 species of ethnomedicinal plants belonging to 21 families which are being used for the treatment of diabetic. The local medicine men are generally found in each of the villages in this region. They generally collect plants from their surrounding plant communities and process the drug and preserve the drug plants in their homestead gardens.

KEY WORDS: Deforestation, Flora and fauna, Hyperglycemia, Insulin, Indigenous people.

I. INTRODUCTION

Diabetes is the common term for several metabolic disorders in which the body no longer produces insulin or uses the insulin it produces ineffectively. The cause of diabetes continues to be a mystery, although both genetics and environmental factors such as obesity and lack of exercise appear to play roles. As of 2014, an estimated 387 million people have diabetes worldwide [1]. Diabetes is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. In 2000, India (31.7 million) topped the world with the highest number of people with diabetes mellitus followed by China (20.8 million) with the United States (17.7 million) in second and third place respectively [2]. Diabetes mellitus is a systemic metabolic disease characterized by hyperglycemia, hyperlipidemia, hyperaminoacidemia and hypoinsulinaemia it leads to decrease in both insulin secretion and insulin action [3]

Northeast India is a region of many cultures and traditions, races, an ethnic tapestry of many hues and shades. Northeast region comprises of 8 states viz Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, which harbours a very rich and diverse flora and fauna with great topographic features and climatic diversity. They are the store house of medicinal plants which are naturally grown and available in the forest. Indigenous people of this region have a deep belief in their native folklore medicines for remedies and they rely exclusively on their own herbal cure.

Traditional system of healing is highly practiced among the different tribes. Their traditional knowledge of medicinal plants has been inherited from the time of their forefathers and passed down from one generation to the other through oral tradition. A rich diversity of flora has provided an initial advantage to its inhabitants for observing and scrutinizing the rich flora and fauna for developing their own traditional knowledge. However, different anthropogenic activities such as deforestation, construction of roads etc. affect this medicinal plant diversity. Therefore, before these inhabitants completely lose their knowledge of medicinal value of plants, there is an urgent need to record such information for the greater good and for the benefit of mankind as well as for the younger generation to come.

II. MATERIAL AND METHODS

Study area present study was conducted in Bongaigaon district of Assam situated between 89° East to 90°96' East to 26°28' North to 26°54' North. An extensive study on Traditional practice of medicinal plants by different tribes (Garo, Rabha etc.) was conducted in different localities in Bongaigaon districts. 10 villages from the Boitamary block of the

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district were under taken for the field survey. A total of 50 informants from 10 villages were interviewed which includes local herbalists, traditional healers, mid-wives, bonesetters, village elders, and farmers. Most of the selected informants belong to those families who have a strong connection with traditional knowledge of medicinal plants. In most cases selection of informants were based on recommendations made by local community members on those elders who were more knowledgeable about the use of local flora for traditional or folk medicine. Specific question based Performa was designed and information recorded in the botanical field notebook along with important medicine. Medicine men were selected on the report of local informant. Before the interview, the respondent was explained with the aim of the study, followed by verbal consent. Each of the healers was selected based on their previous experience of using medicinal plants in treatment and the data obtained from one healer was crossed verified with the other. Routine methods of plant collection and herbarium technique have been followed in the study [4]. Information about the plants were recorded with regards to their vernacular names, plant parts used, process of preparation of medicine, either individually or in combination with other plant parts, and mode of application.

Some of the local people accompanied during the field trips for correct identification. Voucher specimens were collected during field survey in different villages, and nearby forest areas with the help of local people inhabiting the area, photographs were taken. The allotted collection was numbered, poison with formalin, pressed and processed for future identification. GPS readings of latitudes, longitudes and altitudes were recorded in all the villages where the study was carried out. The preserved plant specimens were brought and submitted in the herbarium shelf of Botany Department, USTM for further identification.

III. RESULTS AND DISCUSSION

Different tribes have provided vast information regarding medicines and traditional health care practiced by them. The result of the survey is presented in Table 1, which represent the list of medicinal plants recorded from the tribal communities. The scientific name of the plants are arranged in alphabetical order, followed by its local name, family, habit, parts used etc. The study comprises 27 species of ethnomedicinal plants belonging to 21 families.

The most dominant family recorded as a whole is Cucurbitaceae (3 species); followed by Acanthaceae (2 species), Alliaceae (2 species), Lamiaceae (2 species), Solanaceae (2 species), Amaranthaceae (1 species), Annonaceae (1 species), Apocynaceae (1 species) (Fig. 1).

Maximum of the plant/plant-extracts were found to be prepared in aqueous solution and were consumed during the early hours of the day in empty stomach. Different parts of medicinal plants were used as medicine by the local traditional healers. Among the different plant parts, the leaves were most frequently used for the treatment of diseases followed by Fruit, bark and whole plant (Fig. 2). The methods of preparation fall into four categories, viz. plant parts applied as a juice extracted from the fresh plant parts and powder made from fresh or dried plant parts. The maximum number of prescriptions are orally administered which are followed by topical or local applications. Smoking, taking bath, snuffs, tying to the body parts, etc. are also applied sometimes.

The local medicine men are generally found in each of the villages in this region. They generally collect plants from their surrounding plant communities and process the drug and preserve the drug plants in their homestead gardens. About 40% of the plants species are conserve in their home gardens and paddy fields for their use without visit to forest and 30% species found in wild conditions because of their abundant distribution.

Table 1. List of the Anti-Diabetic plants used by the local people.

Sl no.	Name of the plants	Local name	Family	Parts/Mode of use
1	<i>Annona squamosa</i> (L)	Akash-phal	Annonaceae	Raw bark, leaf extracts
2	<i>Azadirachta indica</i> (A.juss)	Neem	Meliaceae	Leaf extracts
3	<i>Aegle marmelose</i>	Bel	Rutaceae	Leaves extract
4	<i>Achyranthes aspera</i>	Bansat	Amaranthaceae	Bark and leaf powder
5	<i>Allium cepa</i>	Piaaz	Alliaceae	dried onion powder
6	<i>Allium sativum</i>	Roshun, Nahru	Alliaceae	Extract

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7	<i>Aloe barbadensis</i>	Chal-kunwari	Asphodelaceae	leaf pulp extract
8	<i>Areca catechu</i>	Tamul	Arecaceae	Fruit
9	<i>Catheranthus roseus</i> (L.)	Nayantora	Apocynaceae	leaves and or the whole plant
10	<i>Centella asiatica</i> (L. urban)	Manimooni	Mackinlayaceae	Fresh leaf extracts
11	<i>Citrullus colocynthis</i> (L.) Schrad	Khuwa bhaturi	Cucurbitaceae	The bark of the red ripens fruit
12	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Dupor-tenga	Crassulaceae	Leaf extract
13	<i>Momordica charantia</i>	Tita kerela	Cucurbitaceae	Fruit
14	<i>Solanum xanthocarpum</i>	Kata-bengena	Solanaceae	extract of the fresh fruits
15	<i>Stellaria media</i> (L.) Vill	Morolia-sak	Caryophyllaceae	extracts of the whole plant
16	<i>Murraya koeningii</i> (L. spreng)	Narasingha	Rutaceae	Leaf extract
17	<i>Phlogocanthus thyrsoiflorus</i> (Nees)	Ronga bahak	Acanthaceae	Fresh extract of the leaf,
18	<i>Punica granatum</i>	Dalim	Punicaceae	Flowers
19	<i>Hodgsonia heteroclita</i> (Roxb.)	Hati kerala	Cucurbitacea	extracts of the fruit juice
20	<i>Erythrina variegata</i> L.	Modar	Fabaceae	Root
21	<i>Phyllanthus emblica</i>	Amloki	Phyllanthaceae	Fruit
22	<i>Curcuma longa</i> (L.)	Haldi	Zingiberaceae	Stem
23	<i>Leucas aspera</i>	Doron	Lamiaceae	Flower, leaf
24	<i>Andrographis peniculata</i> (Burm.f)	Chirota wall	Acanthaceae	Whole plant extract
25	<i>Terminalia chebula</i> Retz.	Silikha	Combretaceae):	Seed
26	<i>Ocimum sanctum</i>	Tulshi	Lamiaceae	Extract of leaves
27	<i>Hibiscus rosa-sinesis</i>	Joba	Malvaceae	

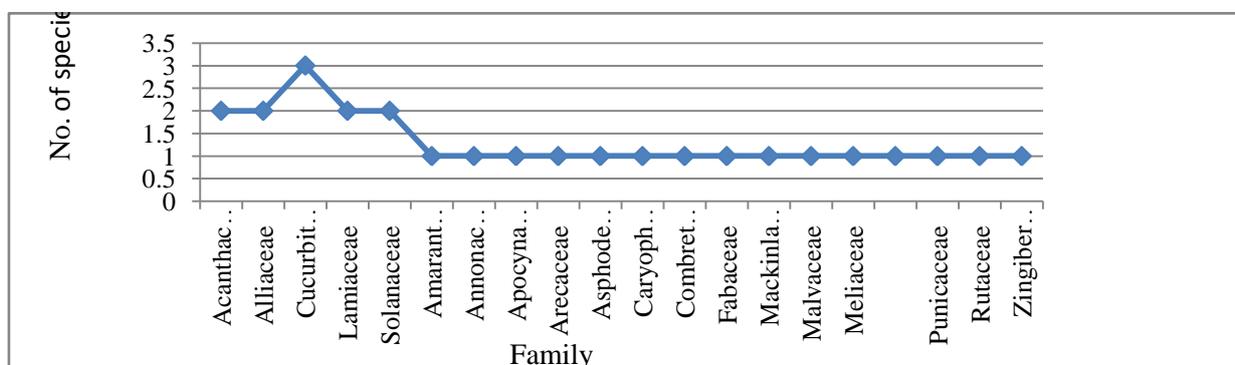


Figure 1. Number of plant species per family recored in the study area.

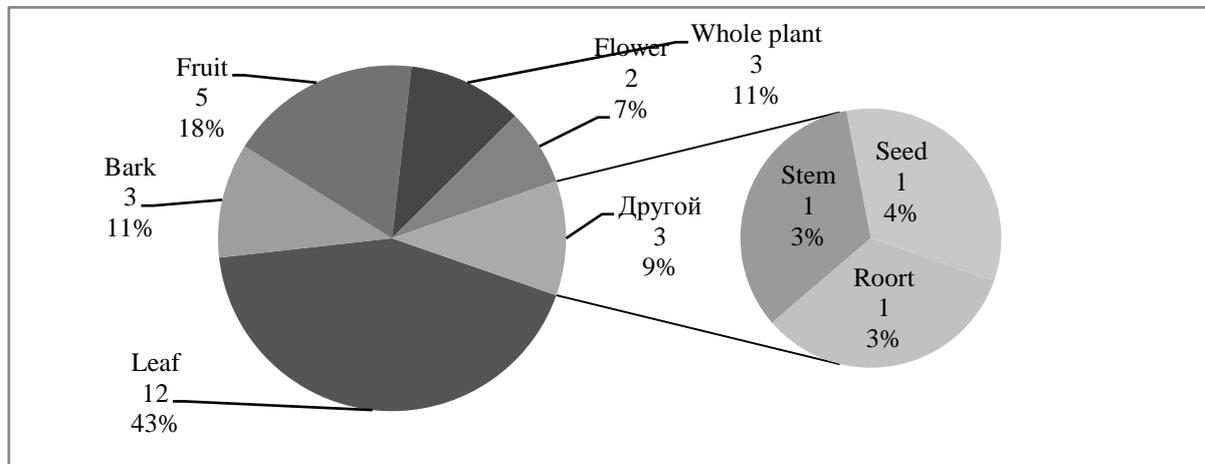


Figure 2. Plant parts used for the traditional medicinal system.

IV. CONCLUSION

Medicinal plants play important role in the traditional healing systems. However, these medicinal plants are harvested unsustainably therefore they are becoming rare and some are at the margin of extinction. Due to unscientific and over exploitation, these medicinal plants have become merely extinct and endangered. For that reason, management of these medicinally important plants should be viewed seriously for the sake of mankind and future generations. However, further study on phyto-chemical investigation required for the medicinal plants used by the people of this region. It will help to make the medicinal more popularized among the new generations and also can help to create awareness to conserve the important medicinal plants in this region.

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BIOGRAPHY

Dr. S. I. Bhuyan did his M.Sc. (Botany) from Gauhati University and Ph.D. (Forestry) from North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh-791109. He is presently working as Assistant Professor in the Department of Botany, University of Science & Technolgy, Meghalaya. His papers more than 20 were published in various esteemed reputable International Journals. He is a Member of Various Professional Bodies.