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RESEARCH ARTICLE

AN ETHNOBOTANICAL SURVEY OF PLANTS OF SYLHET IN BANGLADESH

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ABSTRACT

An ethnobotanical uses of plants were examined at two hilly area of sylhet in Bangladesh. The study identified 26 species belonging 18 families that are being used in traditional health care. The research reveals that the use of these plants was confined mostly less educated and poor people of tea state and they depend on the treatment of native healers. This result also demonstrated that the plants are uses either whole parts or different parts like leaves, stem, bark, root, flower, seed, etc. Plant are used for quick recovery from long time sickness like preventing Asthma, Dirreahae, Dysentery, sexual disease, urinary tract disease. There is a big diversity of indigenous plant of hilly area at sylhet and their traditional medicinal practice by native healers.

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INTRODUCTION

Human has been depended on plants for various needs since time immemorial as all ancient and modern people have used plants as a source of medicines (Hussain *et al.*, 2006). Documentation of traditional knowledge on ethnomedicinal use of plants has been considered as a high priority to support the discoveries of drugs benefiting mankind (Pieroni 2000; Dutta and Dutta 2005; Pradhan and Badola 2008). In addition, this knowledge and experience of different ethnic groups can play a vital role in the identification, conservation and use of various plant resources including the wild and uncultivated (Partha and Hossain, 2007). Primitive people have used plants to cure a variety of human ailments (Perumal and Gopalakrishnakone, 2008). Even today, plants are the chief source of curing diseases in world wide including Bangladesh. In 2003, the World Health Organization(WHO) calculated that over 80% of African population used traditional medicine for primary health care and the treatment with medicinal herbs comprises 30-40% of all used medications in China (O'Sullivan, 2005). Bangladesh is a rich floral diversity most of which possesses medicinal properties (Rana *et al.*, 2010). The rural population of Bangladesh has traditionally depended on folk medicinal healers for treatment of their ailments (Hossain *et al.*, 2006). The greater Shylhet region (Shylhet district, Moulvibazar district, Habigonj district and Sunamgonj district is inhabited by a number of tribes (Rana *et al.*, 2010). Monipuri and khasia are two well-known of them.

Tribal people are the ecosystem people who live in harmony with the nature and maintain a close link between man and environment (Sajem and Gosai 2006). The livelihoods of tribal and forest dwellers are mainly dependent on the forests, which have built up their socio-economic and cultural life (Shroff 1997). Tribal communities use surrounding plants for their primary healthcare along with other necessities, which are based on their traditional knowledge and dynamic cultural heritage (Rana *et al.*, 2010). People living under poverty line and illiterate people mostly depended on natural gift and often rush to local ayurvedic practitioners. These healers use medicinal plants as their primary source of medicinal formulations. The plants used by them were collected from three places i.e. Premnagar tea estate, Mukam bazaar; Phoolchori tea estate, Kalighat tea estate, Srimangal of Moulvibazar district. The information of plants was collected from interviews of local peoples and folk healers. Information about medicinal plants traditionally used for therapeutic purposes is mainly deficient because archive materials is not systematized and mostly presented in small ethnographic papers published in native languages (Luczaj and Szymanski, 2007). The present investigation therefore, gives an opportunity to explore the interrelationships between plants, human being, environment, ecology and traditional knowledge and culture of north-eastern Bangladesh.

MATERIALS AND METHODS

Plants were dried, preserved and identified with the help of a available literature and classified on the basis of their local utility For this purpose information were learned from healers and were interviewed personally. The data surveyed was then

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Table 1: Ethno botanical importance of plants from Mukam bazaar and Phoolchori tea estate, District Moulovibazar, Bangladesh.

Sl.No	Local Name	Species	Family	Parts used	Disease/Illness	Use
1	Basak	<i>Adhatoda vasica</i> Nees	Acanthaceae	Leaves, root	Tuberculosis, Asthma, Digestive disorders, Peptic ulcer, Cough and Flu.	Make paste by all parts and boiled. Then it is taken with honey.
2	Bel	<i>Aegle marmelos</i> (L.) Corr	Rutaceae	Fruit (young, ripe), Leaves	Dysentery, Diarrhoea. Increase fertility in male. Peptic ulcer.	Dried fruit are grounded well to make juice then is taken with honey. Ripen fruit juice is taken.
3	Durba	<i>Cynodon dactylon</i>	Grammineae	All parts	Diarrhea, vomiting.	Paste prepared from leaves and black pepper is taken. Paste prepared from the whole plant is taken with sugar. (In case of children take with breast milk).
4	Apang	<i>Achyranthes aspera</i> L.	Amaranthaceae	Leaves, root, thorn.	Urinary track disease Injury Diarrhea vomiting Fever	Decoction of plant is prepared. It is taken with sugar. Juice prepared from leaves is directly applied to injured site. Paste prepared from root and black pepper is taken. Paste prepared from root is taken with honey.
5	Aparajita Nila.	<i>Clitoria tarreteia</i> L.	Leguminosae	Leaves	Poison (fox) Eye disease	Paste prepared from leaves and black pepper. Pill is taken one per day. One drop of leaves juice is applied to eye. Prepare leaves juice is applied to head with coconut oil to reduce high blood pressure.
6	Tulsi	<i>Ocimum sanctum</i> L.	Lamiaceae	Leaves	Cataract Fever, Indigestion	Paste prepared from leaves and black pepper is taken.
7	Gulanchara	<i>Tinospora crispa</i> Miers.	Menispermaceae	Creeper	Pain, Fever, Debility	Juice is prepared from smashed creeper is taken with sugar.
8	Aknadi	<i>Stephania japonica</i> (Thunb.) Miers.	Menispermaceae	Leaves	Constipation Toxin	Juice prepared from leaves is taken with sugar. In snake bite the affected area is cut with a blade or knife and 2-6 drops of leaf juice is applied. In addition the wound is bandaged with the leaves. After two hours the bandaged is removed. Investigation followed that if venom is present the juice will absent. Then the procedure will repeat.
9	Talmuli	<i>Curculigo orchiooides</i>	Meliaceae	Root	Gall bladder fever Pain Premature ejaculation, Syphilis and sexual diseases, Enlarged spleen.	Juice prepared from leaves is taken with honey. Applied leaves warm on pain site. Dried roots are powdered and taken with milk.
10	Neem	<i>Azadirachta indica</i>	Meliaceae	Young leaves, seed kernel, bark, branch.	Scabies, warts, Cold sores, Inflammation, scar, Pigmentation, acne, Gingivitis, Gum disease, Bacterial, fungal infections	Paste prepared from leaves is applied to affected areas to treat skin disease.
11	Swarnalata	<i>Cuscuta reflexa</i> Roxb	Convolvulaceae	leaves	Liver cirrhosis Hypertension, Bile disease	Paste prepared from leaves is applied to the abdomen. Powder prepared from dry leaves is taken with water. Paste prepared from 200g of young leaves and 2liters of water is added the extract is heated until the volume reduces to 0.5liter. The extract is taken with honey.
12	Red Lazzabati, Lazak.	<i>Mimosa pudica</i>	Leguminosae	Leaves	Skin disease Urine tract stone, Piles, Skin diseases, Fever	Prepared powder from dry leaves is taken with milk.
13	Shonkapuspo	<i>Convolvulus pluricaulis</i>	Gentianaceae	Leaves Flowers	Tumor	Powder prepared from the whole plant is taken it two spoons for seven days (Fever), fourteen days (Piles), twenty one days (Skin diseases). Paste prepared from leaves and flowers is applied to tumor. Then it is covered with white paper.
14	Ulot kombol	<i>Abroma augusta</i>	Malvaceae	Bark	Menorrhagia	Decoction of bark is taken.
15	Shimul	<i>Salmaia malabarica</i>	Malvaceae	Young plant root, Thorn, Bark.	premature ejaculation, Syphilis, Sexual diseases Mouth spot Acne, Dysentery Diarrhea	Powder prepared from dried young plant is mixed Talmuli root powder. The preparation is taken with milk for seven days. Paste prepared from thorn with milk is applied to face. Paste prepared from bark is taken with milk.

16	Alkushi	<i>Mucuna pururita.</i>	Fabaceae	Root	Weakness of penis	Paste prepared from root with goat milk is applied to penis.
17	Kal dhutura	<i>Datura metel fastuosa.</i>	Solanaceae	Leaves, Root	Paralyzed Error in delivery	Paste prepared from leaves is massaged on paralyzed site. After keeping root on water for sometimes (5-10minute) is taken and root bind with hair.
18	Don kolash	<i>Ipomoea fistulosa</i> Roxb.	Convolvulaceae	Leaves	Venom Liver disease Fever Pain in lower abdomen during menstruation.	Prepare leave juice with black pepper is taken within 3 hours. If venom still present in body, two drops of leave juice passes through by nose. Prepare leaves juice with honey (same volume) is taken two times per day for five days. Prepare leaves paste with black pepper. Pill is taken one per day for two to three days.
19	Begunia	<i>Begonia sp.</i>	Begoniaceae	leaves	Tonsil Arthritis Laryngeal disease	Prepare leaves juice is taken with honey. Prepare leaves juice is taken with honey. Warm leaves paste is applied on the affected site.
20	Amloki, Amla	<i>Phyllanthus emblica.</i>	Euphorbiaceae.	Bark, Fruit	Diabetes mellitus Syphilis and sexual diseases Dysentery	Prepare fruit juice (12ml) is taken with milk (250ml) and honey (12ml). Prepared paste from bark is taken with honey. Keeping the bark on the water for a night is taken. Fruits are directly applied as diet.
21	Pichash	<i>Chromolaena odorata</i>	Compositae	Leaves	Trauma injury	Paste prepared from leaves is applied on injured site.
22	Shed gach	<i>Euphorbia</i>	Euphorbiaceae	Leaves	Child flu	Paste prepared from shed, basak, and tulusi leaves is taken with honey.
23	Dauud	<i>Cassia alata L.</i>	Fabaceae	Leaves	Skin disease	Paste prepared from leaves with salt and garlic. After remove the epidermal layer of infected site, paste is applied externally.
24	Sajna	<i>Moringa oleifera</i>	Moringaceae	Bark	Chest pain during pregnancy	Paste prepared from bark with sugar, cardamom, cinnamon and black pepper is taken.
25	Jara lebu	<i>Aptenia cordifolia</i>	Aizoaceae	Fruit	Headache	Fruit juice is applied on head to cure headache.

analyzed carefully. The information reported here is based on the local knowledge.

RESULT AND DISCUSSION

Plants and their distribution into families

In the present analysis a total of 25 plants were reported by the traditional healers called kabiraj the local inhabitants and the monipuri tribe. The uses of these plants are given in table 1. The ethno medicinal plants studies are enumerated, arranged alphabetically with their English name followed by local name, scientific name, family, plants part used, ailments and utilization procedure. These medically important plant or medicinal plants are distributed across 18 families. The most common and larger families include Leguminosae, Menispermaceae, Malvaceae, Meliaceae, Convolvulaceae, Euphorbiaceae, Fabaceae with two species each indicating that the plants under these four families have the most widest use in the remedies for various ailments. The rest of plants are accompanied by a single family each e.g. Acanthaceae, Rutaceae, Begoniaceae etc. Again, the plants can be divided into tree, herb, shrub and climber comprising 7, 13, 3 and 2 species, respectively. This result revealed that, the herbs were dominant (52%) followed by trees (28%), shrubs (12%) and climber (8%), which show in Fig-1.

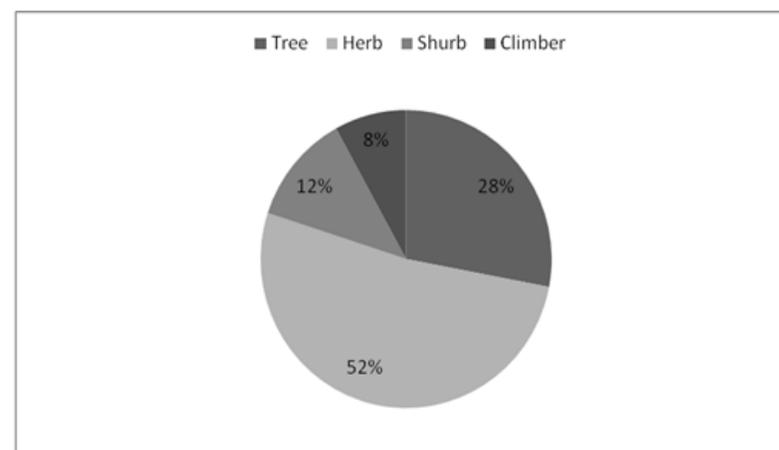


Fig. 1 Habit wise distribution of medicinal plants used by the traditional healers called "kabiraj", the local inhabitants and the monipuri tribe

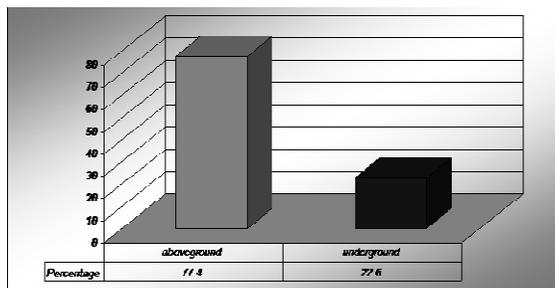


Fig. 2 Percentages of medicinal plants based on aboveground and underground

Plant parts used and ailments:

Due to insufficient communication to modern medical facilities, local people of this rural area are highly dependent on medicinal plants. The medicine is generally prepared by an indigenous medical practitioner, called “kabiraj” from the plants available in the natural forest and the homestead forest. Then he will give various prescriptions to the community members. It is noteworthy that the homestead forest is common in Bangladesh, containing a mixture of natural and planted species in a complex structure and being a source of economic-benefit of the rural poor (Rana *et al.* 2010). Not only kabiraj but also some elder community persons acquired knowledge about medicinal plants. For curing numerous diseases, the use of the aboveground plant-parts were higher (77.40%) than the underground plant-parts (22.60%). This is quit similar to the result obtained by Rana *et al.* 2010, where the percentage of the use of aboveground plant-parts was 86% and that of underground plant-parts was 14% (Fig-2).

Out of the aboveground plant-parts, leaf has been found to have the widest use (64%) in sixteen species, followed by roots (24 %) in six species, bark (20 %) in five species, fruits (12%) in three species, thorn (8%) in two species, seed and creeper each among 25 plants. Flower of one plant (Sajna or Drumstick tree) is also used % one plant (Durba or Barmuda) is reported to be used as whole (Fig.3). A similar trend was also observed by Mukul (2007) in a study on a conservation area of Northern Bangladesh, by Halim *et al.* (2007) on the *Shaiji* community in South-Western Bangladesh, and by Sajem and Gosai (2006) in Northeast India.

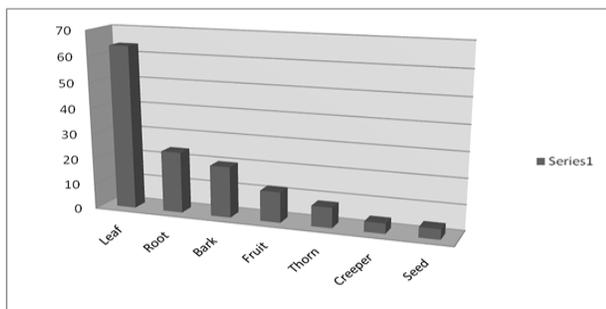


Fig. 3 Percentages of aboveground plant-parts used as medicinal plant

Plants used in diseases

In our current observation 25 plants are used into treat around 61disease/illness. Some plants are used to treat specific

disease. The medicinal plants cure one ailment each e.g. Shonkapuspo, Ulot kombol, Alkushi etc. are totally 9 species among 25 (36%), medicinal plants cure two ailments e.g. Aparajita, Tulsi, etc. are totally 5 species among 25 (20%), medicinal plants cure three ailments e.g. Begunia, Goalnch etc. are totally 3 among 25 (12 %), medicinal plants that cure many more ailments e.g. Basak, Bel, Apang, Talmuli, Swarnalata, Shimul etc. are totally 11 among 25 (44%) (Fig. 4). The total 25 plants species recorded from local the traditional healers called “kabiraj”, the local inhabitants and the Monipuri tribe of Moulvibazar tea garden, which used to treatment many diseases. These plant species used to treat dominantly reproductive diseases or debility by seven species e.g. Goalnch, Shimul, Talmuli, Bel etc. followed by diarrhoea, fever and skin disease treat by four species e.g. Bel, Durba, Apang, Shimul can cure diarrhoea; Dysentery, skin tissue injury, venom infection, cephalis treat with three species e.g. Talmuli, Shimul, Amloki can cure syphilis; indigestion, peptic ulcer diseases, flu, vomiting, urinary tract disease, pain, premature ejaculation, acne treat with two species e.g. Talmuli and Shimul used to treat premature ejaculation. Some other diseases also treat with some other specific plants, which also found in wild source i.e. natural forest, village groves, jungle, graveyards, and road side and pond bank (Fig-5).

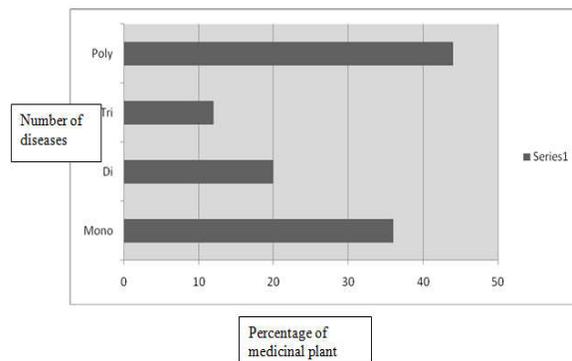


Fig. 4 Percentages of plants based on diseases

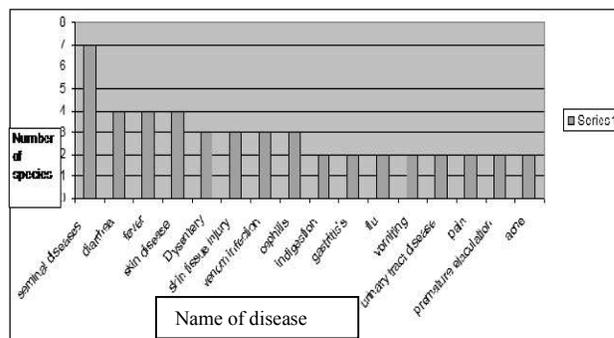


Fig. 5. Number of species based on diseases

From this result it observes that in three places of Moulvibazar, 18 different families are found and so a large biodiversity present there. The ethnobotanical study of 25 plants shows their medicinal uses in many purposes. It has been seen that similar uses of these plants have also been reported by other workers (Parvez *et al.*, 2010; Hussain *et al.*, 2006; Wazir *et al.*, 2007; Zabihullah, 2006). It is also found that they use the medicinal plants in a sustainable way and conserving them. From this study we found four families

which have widest use in ailment. It also found in this study that, leaves is the plant-parts dominating than other parts for drug formulation.

Conclusion

In this study we looked at the plenty of medicinal plant and pharmacopoeia of rural community. Knowledge of traditional medicinal practices is fast disappearing, as native healers die out and are replaced by more modern medical practitioners. Botanists and pharmacologists are racing to learn these ancient practices, which, like the forest plants they employ, are also endangered. An explanation for some species loss is habitat lost due to invasive species introduction. Species extinction is not only due to habitat loss. Overharvesting of medicinal species of plants also contributes to species loss. That's why our further work should focus on the through phytobiotechnological investigation such as tissue culture and phytochemical analysis of plantlets from tissue culture.

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