

The Use of Plants in Indigenous Health Care Practice of the *Hajong* Tribe Community in North Eastern Bangladesh

Md. Parvez Rana*, Md. Shawkat Islam Sohel, Sayma Akhter, and Mohammad Rakibul Hassan

Department of Forestry and Environmental Science, Shahjalal University of Science and Technology,
Sylhet-3114, Bangladesh

ABSTRACT : An ethno-medical investigation was carried out to understand the use of plants in indigenous health care practice of the *Hajong* tribe community in North Eastern Bangladesh. The study of ethnobotany relating to any tribe is in itself a very intricate or long-winded process. The present study was done through structured questionnaires in consultations with the tribal practitioners and has resulted in the documentation of 25 plant species belonging to 21 families including herbs (36%), shrubs (32%), trees (28%) and climber (4%) were frequently used by the *Hajong* tribe for curing 27 ailments. For curing ailments, the use of aboveground plant parts was higher (86.67%) than the underground plant parts (13.33%). Leaf was used in the majority of cases for medicinal preparation (13 species), followed by fruits (7 species), root/rhizome (4 species), whole plant (3 species) and besides these, seed, latex and bark were used one species each, respectively. The study thus underlines the potentials of the ethnobotanical research and the need for the documentation of indigenous healthcare knowledge pertaining to the medicinal plant utilization for the greater benefit of mankind.

Keywords : Indigenous healthcare, Medicinal plants, Bangladesh, Community, Tribe

INTRODUCTION

Man has been using medicinal plants from the ancient times and in recent years, interest in the exploitation of plants as pharmaceuticals, herbal remedies, flavourings, perfumes, cosmetics and other natural products has greatly increased (Iqbal, 1993; Walter, 2001; Rao and Arora, 2004). 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). Foods, fodders, medicine and other forest products have made a traditional economy of the tribal communities of the world (Miah and Chowdhury, 2003). Prakash (1999) estimated that by consulting indigenous peoples, bio-prospectors could increase the success ratio in trials from one in 10,000 samples to one to two. He also documents that traditional

knowledge increases the efficiency of screening plants for medicinal properties by more than 400 percent. If such inputs of indigenous knowledge are not involved throughout the world, many valuable medical products used extensively today, would not exist in the future. Through evolution, plants have developed large numbers of chemical substances to defend themselves against insect pests, and fungal and other pathogenic diseases. Some of these chemicals can also fight against micro-organism and other diseases in the human body. They represent an important source of natural drugs. Their highly complex molecular structures often surpass the imagination of the chemist and cannot easily be reproduced in the laboratory (Seters, 2003). The earliest mention of the medicinal use of plants is found in the *Rig Veda* (4500-1600 BC) which contains information on the medicinal use of plants in the Indian subcontinent (Ghani, 2003; Halim et al., 2007).

More than 80% of the world's population depends on traditional medicinal plants for their healthcare and 20%

* Corresponding author: (E-mail) parvez_200207@yahoo.com

drugs in modern allopathic medicine are derived from plant resources (Uddin et al., 2008). Bangladesh is rich in floral diversity, most of which possesses medicinal properties. According to Kadir (1990) and Yusuf et al. (1994), about 5000 plant species are found in Bangladesh, of which 1000 are said to have medicinal qualities. A total of 85% of the country's population lives in rural areas that depend mainly on herbal medicines. Their knowledge regarding medicinal plants is lost due to change of habitats and culture (Banik, 2001).

There are many tribes in Bangladesh. Anon (2002) recorded 45 tribes' lives in Bangladesh. The North-Eastern region is inhabited by a variety of tribes. The *Hajong* are the ancient among the ethnic minorities of the North-Eastern region of Bangladesh who represent different types of socio-political organization compared to the other ethnic group (Nasrin and Khalifa, 2004). The total population of the *Hajong* in Bangladesh is 11,477 (Anon, 2003).

From time immemorial, tribal people have traditionally and culturally used medicinal plants (Rashid and Rashid, 2002). Use of 52 medicinal plants by the *Khasia* and *Manipuri* tribes of Sylhet, Bangladesh (Uddin et al., 2008); 76 species by the *Marma* tribe of the Chittagong Hill Tracts, Bangladesh (Alam, 1992) and 39 species by the *Mro* tribe of Bandarban, Bangladesh (Miah and Chowdhury, 2003) are such certain example. Various studies have been conducted on various tribes of Chittagong Hill Tracts, Bangladesh e.g. Siddiqi (1998), Khisa (1998), Sattar (1998), Banik (1998), Alam and Khisa (2000), Haque (2000a, 2000b), Mustafa et al. (2002), Alam (2002), Mohiuddin et al. (2002). As *Hajong* tribes' lives mainly in North-Eastern region of Bangladesh, so it is urgently needed to explore their perception about medicinal plants. Furthermore, the *Hajong* tribe uses medicinal plants rather than allopathic and homeopathic treatments for their health care. In Bangladesh, the knowledge of this tribal community remains largely undocumented and is handed down orally. The younger generation has very different ambitions. Therefore, the traditional knowledge is doomed to be lost. That is why ethnobotanists regard the death of a shaman to the loss of a national library. A number of studies were

carried out earlier on *Hajong* spiritual life and dependency on forest. However no study was carried on their indigenous medical knowledge. Therefore, this study was undertaken to ascertain their indigenous knowledge on medicinal plants in North-Eastern regions of Bangladesh.

METHODOLOGY

Study area

The study was conducted at Nayabil *Union* (a rural administrative unit consist of a number of villages) of Nalitabari *Upazila* (Sub-district; administrative entity) of Sherpur district, Bangladesh over a period of six months from June 2008 to October 2008 (Figure 1). It is located between 25°19' and 25°13' north latitudes and between 90°04' and 90°19' east longitudes. The *Upazila* occupies an area of 327.61 sq km including 1.68 sq km river area and 0.78 sq km forest area. The *Upazila* is bounded on the north by India, on the east by Haluaghat of Mymensingh district, on the south by Nakla and Sherpur *Upazila* and the west by Jhenaigati *Upazila*. The *Upazila* consists of 12 unions, 108 mauzas and 138 villages. The average population of each union, mauza and village are 32,333, 2,096, and 1,640 respectively. The area lies in the semi drier part of the Bangladesh. The maximum temperature is usually 30°C during the month of May and maximum temperature is about 10°C during the month of January (BBS, 1992).

Method

The *Hajong* are one of the ancient among the tribes of the North-Eastern region of Bangladesh. They mainly live in three district of Bangladesh. These are Mymensingh, Sherpur and Netrokona (Ahmed, 2003). Sherpur district has been selected for study by random sampling. Out of five *upazilas* of Sherpur district, the *Hajong* are concentrated in the hilly areas of Sribardi, Jhenagati and Nalitabari *upazilas*. A list of three *upazilas* of Sherpur district was arranged alphabetically and Nalitabari was selected randomly



Fig. 1. Map of the Study Area.

from the list. Nayabil Union of Nalitabari Upazila is inhabited mostly by the *Hajong*. So, this union was selected purposively. A list of the *Hajong* hamlet was collected from the office of 'World Vision', an NGO working locally for the improvement of the *Hajong* tribe. Three hamlets were finally selected at random from the list of the study. From each of the three hamlets, 12 households were selected randomly. Thus, a total of 36 households were selected from the study area.

They were interviewed using a semi-structured questionnaire to ascertain the plants they use, parts they use, for what diseases, sources they prefer, the reason for cultivating any plant and the eagerness of the younger generation in this regard. The plant species used for medicine were firstly identified by local names. The scientific names were obtained by consulting the literature (BARC, 1972-1992; Chopra et al., 1992; Chevallier, 1996;

Das and Alam, 2001). A final list of the species used for medicinal purposes was prepared based on the study by Dey (2006). The method of utilization of plant species was obtained from skilled and experienced older members of the tribal community.

RESULTS AND DISCUSSION

A total of 25 plant species including herbs, shrubs, climbers and trees were frequently used by the *Hajong* tribe for curing ailments were recorded during the survey. The study revealed that herbs were dominant (36%) followed by shrubs (32%), trees (28%) and climbers (4%) (Figure 2). A similar trend was also observed by Ghani (2003) who conducted researches on other communities of Bangladesh and Halim et al. (2007) on the *Shiji* community in Southeastern Bangladesh but Mukul (2007); Miah and

Chowdhury (2003) found that trees were dominant on a conservation area of Northern Bangladesh and Mro tribe in Chittagong Hill Tracts, Bangladesh respectively.

A total of 21 families were identified of which the highest number of species (2 species) was found under the family Rutaceae, Compositae, Leguminosae, Combretaceae (Figure 3). Rests are the families contain one species each. The 15 families, i.e. Acanthaceae, Rutaceae, Araceae, Bromeliaceae, Meliaceae, Asclepiadaceae, Orchidaceae, Euphorbiaceae, Convolvulaceae, Lauraceae, Cucurbitaceae, Leguminosae, Apocynaceae, Combretaceae and Zingiberaceae were also reported by Mukul et al. (2007) to be widely used for medicinal purposes.

It was evident from the study that the *Hajong* tribe was greatly dependent on herbal medicine. Because of the inaccessibility to the modern medical facilities, they have much dependence on indigenous medical practitioner, called *Kabiraj* who generally prepare medicine from the plants available in the forest, and also in the homestead forest, give prescription to the community members who face disease. Since they were found to be the most depended on herbal treatment, they had a greater understanding of medicinal plants too. The study revealed that not only the *Kabiraj*, but also every elder community member had a

good knowledge of the medicinal value of some plant, usually those species used to treat common diseases like cough, asthma, phthisis, malaria, bleeding of piles, gastric, flatulence, stomach trouble, fever, skin disease, diarrhea, insect biting, sprain, joint ache, constipation, Jaundice, snakebite, cut and wounds, indigestion, dysentery, vomiting, cold ailments, scabies, diabetes, belly ache, loss of appetite, burning, and abdominal pain etc. The medicinal plants are affected by the destruction of forests day by day. Attention should be paid to conserve the indigenous knowledge of medical treatment and herbal plants, which the forefather of the *Hajong* and other ethnic communities for generation, recognized for the treatment of their various diseases.

The use of *Adhatoda vasica* for treatment of piles bleeding found in the study area. Same result also found by Uddin et al. (2008), Mukul et al. (2007), Miah and Chowdhury (2003) in Bangladesh and Sajem and Gosai (2006) also found same result in Jaintia tribes in Northeast India. The use of *Centella asiatica* against piles has been also reported in the study area (Figure 4) while the same species is used against dysentery (Miah and Chowdhury, 2003), dysentery, diarrhea and gastric pain (Mukul et al., 2007) in Bangladesh but Sajem and Gosai (2006) reported against conjunctives, eye injury, stomachic, indigestion and flatulence in *Jaintia* tribes in Northeast India. Diabetes was

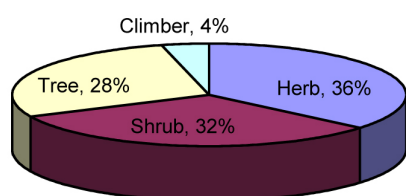


Fig. 2. Percentage of type of the medicinal plants recorded from the study area.

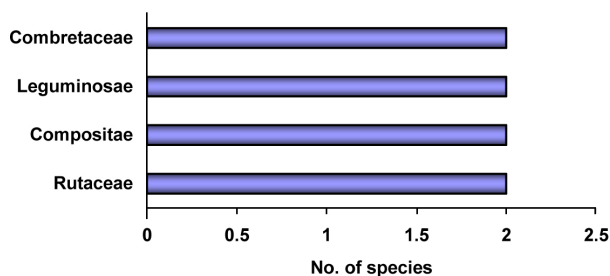


Fig. 3. Number of species under different families of medicinal plants.



Fig. 4. *Centella asiatica*.



Fig. 5. *Mimosa pudica*.

also found to be a concern of the *Hajong* tribe for the treatment of which *Mormordica charantea* was reported to be used by them. The use of this species for anti-diabetic activity is also evident from Platel and Srinivasan (1997), Grover et al. (2002), Rathi et al. (2002) and Kar et al. (2003). Some other species used frequently against various ailments by the *Hajong* have significant blood glucose lowering properties, evident from many authors. *Ocimum sanctum* (Grover et al., 2002; Kar et al., 2003), *Azadirachta indica* (Kar et al., 2003; Chattopadhyay, 1999); *Aegle marmelos* (Kar et al., 2003), are the examples of such species.

Mimosa pudica used against scabies in the study area (Figure 5) and same result also found in *Mro* tribe Bangladesh (Miah and Chowdhury, 2003) but it used against fever and dysentery (Rahman et al., 2008); wounds, fistula, dysentery, piles and jaundice (Uddin et al., 2008) in Bangladesh, curing piles in *Jaintia* tribes in Northeast India (Sajem and Gosai, 2006). The use of *Ocimum sanctum* against cough and cold recorded in the study area and same result also found in a conservation area of Northern Bangladesh (Mukul et al., 2007) but it used against stomach ache and head ache reported in Northeast India (Sajem and Gosai, 2006). *Ocimum sanctum* has a long Bangladeshi history of bearing an antitussive property but its analgesic

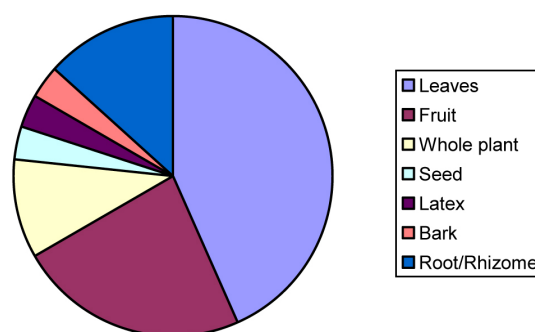


Fig. 6. Medicinal plants break up by parts used.

use has never been reported earlier.

For curing ailments, the use of aboveground plant parts was higher (86.67%) than the underground plant parts (13.33%). Of the aboveground plant parts, leaf was used in the majority of cases (13 species), followed by fruits (7 species) (Figure 6). A similar trend was also observed by Mukul (2007) who conducted researches on a conservation area of Northern Bangladesh and Sajem and Gosai (2006) in Northeast India. But Anonymous (2005) reported root is mostly used when using medicinal plant parts that are wildy harvested. This makes the sustainable harvesting of medicinal plants difficult. In this study, the *Hajong* used mostly leaves. This ensures sustainable harvesting of medicinal plants. It provides an incentive to protect and maintain wild populations and their habitats and the genetic diversity of medicinal plants (Schippmann et al., 2002). The whole plant of three species viz. *Alocasia indica*, *Ipomoea fistulosa*, *Kalanchoe pinnata* were used as medicine. These 25 medicinal plant species were used in curing about 27 types of ailment (Table 1).

The study also revealed that five species were recorded to be used against dysentery of which four were trees and one shrub. Four medicinal plants of the area were used for treating cough followed by cut and wounds, fever and flatulence were three species each (Table 2). Miah and Chowdhury (2003) also recorded highest nine species were used against dysentery in *Mro* tribe Bangladesh but Mukul et al. (2007) found highest nice species were used against cold ailments of which 2 trees, 1 herb, 5 shrubs and 1 climber in a conservation area of Northern Bangladesh.

Table 1. List of medicinal plants used by *Hajong* tribe of northeastern Bangladesh: their uses, parts and application

Species	Parts used	Ailment	Application
<i>Adhatoda vasica</i>	Fresh green leaves	Cough, asthma, phthisis, malaria and bleeding of piles	The juice obtained from leaves bruised with water is drunk.
<i>Aegle marmelos</i>	Fruit	Gastric, flatulence	The slippery juice are mixed with water and salt and drunk to reduce the gastric pain while the dried slices are soaked in water. After decanting the water is drunk and the slices are chewed.
<i>Alocasia indica</i>	Whole plant	Stomach trouble	The fleshy tuber is cut into small pieces and dried well. Thereafter, it is taken after cooking for some days.
<i>Annas comosus</i>	Fruit	Jaundice	The fruit is eaten raw.
<i>Azadirachta indica</i>	Fresh green leaves and seed	Fever, skin disease, diarrhea, insect biting	The bark and leaves are boiled with water. After decanting the warm water is used
<i>Calotropis procera</i>	Leaves, Latex	Sprain, joint ache	The leaves are warmed lightly over the fire and placed on the sprain, joint.
<i>Carica papaya</i>	Fruit	Constipation	The green fruit is cooked and eaten as vegetable while the ripen one is eaten raw.
<i>Centella asiatica</i>	Leaves	Piles	Leaves of <i>C. asiatica</i> and root of <i>S. articulatus</i> are ground well to prepare juice. The juice is taken together with goat's milk before breakfast.
<i>Chromolaena odorata</i>	Green leaves	Cut and wounds	After grinding the leaves put it on the cut and wound portion.
<i>Citrus limon</i>	Fruit, Leaves	Indigestion	Juice obtained from fruits and leaves are taken daily in the morning and evening with sugar.
<i>Cymbidium aloifolium</i>	Leaves	cut and wounds	Leaves are ground well to make a paste and placed over wounds.
<i>Datura metal</i>	Leaves	Dysentery	The juice of leaves is drunk.
<i>Emblica officinalis</i>	Fruit	Blood dysentery, vomiting	Ground fruits are soaked in water. After decanting, The water is drunk.
<i>Ipomoea fistulosa</i>	Whole plant	Cold ailments	The whole plant is grounded and the decoction is drunk directly.
<i>Kalanchoe pinnata</i>	Whole plant	Cough, flatulence	The leaves and slender stem are rubbed and the decoction is drunk with slight salt.
<i>Litsea polyantha</i>	Leaves	Diarrhea, Dysentery	The leaves are rubbed with slight water. The resulting slippery juice is drunk directly.
<i>Mimosa pudica</i>	Root	Scabies	The leaves are squeezed and placed over scabies
<i>Momordica charantea</i>	Leaves, Fruit	Fever, diabetes	The juices obtained from leaves are drunk.
<i>Ocimum sanctum</i>	Leaves, Root	Cough, cold	The juice of leaves and roots crushed in slight water after decanting, the liquid is drunk mixed with 1-2 drop honey. The decoration of roots is also applicable in diarrhea.
<i>Rauwolfia serpentina</i>	Root	Fever, belly ache Snakebite	The roots are grounded and the decoction is fed. Two or three teaspoonfuls of leaf extract are taken directly
<i>Tagetes erecta</i>	Leaves	Cut and wounds	The juice of leaves is applied over the wounds.
<i>Tamarindus indica</i>	Tender leaves	Loss of appetite	The tender leaves and ripe fruits are taken as the appetizer. The leaves are smothered and mixed with salt. In case of cattle, pulp of one year old fruit is mixed with water and salt and given orally to cure fever and dysentery
<i>Terminalia arjuna</i>	Bark	Burning, dysentery	The bark is soaked in water after grinding. The decanted water is then drunk.
<i>Terminalia belerica</i>	Fruit	Dysentery, asthma, cough, abdominal pain	The fruits are soaked in water, after decanting, the liquid is drunk.
<i>Zingiber officinale</i>	Rhizome	Flatulence, gastric pain	The rhizome is sliced and eaten directly with slight salt.

Table 2. Traditional medicinal uses of different MPs for different ailments by *Hajong* tribe, Bangladesh.

Name of ailments	Number of species reported				Total
	Tree	Herb	Shrub	Climber	
Abdominal pain / Belly ache	1	-	-	1	2
Appetite	1	-	-	-	1
Asthma	1	-	1	-	2
Bleeding of piles	-	1	1	-	2
Burning	1	-	-	-	1
Cold ailments	-	-	2	-	2
Constipation	-	-	1	-	1
Cut and wounds	-	3	-	-	3
Cough	1	1	2	-	4
Diabetes	-	-	1	-	1
Diarrhea	2	-	-	-	2
Dysentery	4	-	1	-	5
Fever	1	-	1	1	3
Flatulence	1	2	-	-	3
Gastric	1	1	-	-	2
Indigestion	-	-	1	-	1
Insect biting	1	-	-	-	1
Jaundice	-	1	-	-	1
Joint ache/pain	-	-	1	-	1
Malaria	-	-	1	-	1
Phthisis	-	-	1	-	1
Scabies	-	1	-	-	1
Skin disease	1	-	-	-	1
Snakebite	-	-	-	1	1
Sprain	-	-	1	-	1
Stomach trouble	-	1	-	-	1
Vomiting	1	-	-	-	1

CONCLUSION

The study revealed that the discovery of different plant species used by the *Hajong* tribe paves way the need to undertake a detailed ethnobotanical study of the whole North Eastern region of Bangladesh involving as many tribes as possible. The dependence of health care practice through locally available MPs of the *Hajong*, has shown a particular pattern of forest resources exploitation and an extreme dependence on forests. The information generated from the present study regarding the medicinal plant use by the *Hajong* tribes need a thorough phytochemical

investigation including alkaloid extraction and isolation along with few clinical trials. This could help in creating mass awareness regarding the need for conservation of such plants and also in the promotion of ethno-medicobotany knowledge within the region besides contributing to the preservation and enrichment of the gene bank of such economically important species before they are lost forever. While there is issue regarding the conservation of biological diversity all over the world, *Hajong* tribe is using plants for their health care in a sustainable manner. They cultivate plants that seem to be rare and ultimately have developed arboretum for conserving plants. For a

complete understanding of the traditional medicinal knowledge of the *Hajong* tribe, chemical analysis of the respective plant parts should be undertaken.

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