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Ethnomedicinal investigations among the Sigibe clan of the Khumi tribe of Thanchi sub-district in Bandarban district of Bangladesh

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ABSTRACT

The Khumis are a small tribe mostly inhabiting the Thanchi sub-district of Bandarban district in Chittagong Hill Tracts of Bangladesh. An ethnomedicinal investigation was carried out among the Sigibe clan of the Khumis residing at Hoitong Khumi Para to document their use of medicinal plants and formulations for treatment of various diseases. A total of 36 formulations were obtained from the Khumi healer. The healer was observed to use 41 plants in his formulations, of which 33 could be identified and 8 remained unidentified. The 33 identified plants were distributed into 23 families. The various diseases or symptoms treated by the healer included various types of pain, kidney stones, dizziness induced by high fever, irregular menstruation, ringworm infection, fever with frequent passing of watery stool, gastric problems, severe fever, abscess, tearing of tendons, snake bite, jaundice, cuts and wounds, oral and anal infections, swelling due to injury, scabies and itches, asthma, and severe headache and dizziness because of adverse effects from other medicines. Close observations of indigenous communities have led to discovery of many modern medicines, because indigenous communities through their living in forest or semi-forest habitats have over long periods of time accumulated considerable knowledge of medicinal properties of various plants. It is expected that the medicinal plants and formulations used by the Khumi healer can play a role in the discovery of new medicines from these plants.

Key words: Medicinal plants, Khumi, Sigibe, Bandarban, Bangladesh

Introduction

The Khumi tribe is one of the minor tribes in Bandarban district of the Chittagong Hill Tracts region in the southeast part of Bangladesh. They currently live in about 36 villages, most of which are in Thanchi sub-district of Bandarban district. According to the 1991 population census, the Khumi population stood at 1,241 persons. They belong to the Mongoloid race of people. Culturally and linguistically, the Khumis belong to the Bawm, Lusai, Kiang and Mro tribal groups. The Khumis can also be found in Myanmar, where they are known as Zomi as well as in Mizoram of India, where they are known as Mizos. They are said to have arrived in their present territory from Chin province in Myanmar. The Khumis are currently divided into more than 50 clans or sects.

Very little has been documented of the folk medicinal practices (present within the mainstream population) and tribal medicinal practices (which may be considered as variant of folk medicinal practices) of Bangladesh. Towards a proper documentation of such practices and to obtain a comprehensive picture of the medicinal plants used in these practices, we had been conducting ethnomedicinal surveys among the folk medicinal practitioners (Kavirajes) of various parts of the country as well as tribal healers of different tribes for the last few years (Nawaz *et al.*, 2009; Rahmatullah *et al.*, 2009a-c; Chowdhury *et al.*, 2010; Hasan *et al.*, 2010; Hossain *et al.*, 2010; Mollik *et al.*, 2010a,b; Rahmatullah *et al.*, 2010a-g; Akber *et al.*, 2011; Biswas *et al.*, 2011a-c; Haque *et al.*, 2011; Islam *et al.*, 2011a; Jahan *et al.*, 2011; Rahmatullah *et al.*, 2011a,b; Sarker *et al.*, 2011; Shaheen *et al.*, 2011; Das *et al.*, 2012a; Rahmatullah *et al.*, 2012a-d). Such surveys are important for close observation of indigenous medicinal practices have already led to the discovery of many modern drugs (Balick and Cox, 1996; Cotton, 1996; Gilani and Rahman, 2005). Plant kingdom has always proved to be a useful source of medicines. The importance of plant kingdom towards discovery of newer medicines has become more important in recent years because of adverse side-effects of many modern medicines, development of resistance to many modern

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medicines like antibiotics, and emergence of new diseases. The objective of the present study was to conduct an ethnomedicinal survey among the Sigibe clan of the Khumi tribe residing in Hoitong Khumi Para of Thanchi sub-district in Bandarban district of Bangladesh.

Materials and Methods

The Sigibe clan of the Khumi community surveyed had one tribal healer, named Mangchai Khumi of around 32 years of age. He was Buddhist by religion. Informed consent was first obtained from the healer, who was explained the purpose of our visit, and his consent obtained to disseminate any information provided in national or international publications. The healer understood and knew how to speak the Bengali language, which was the language spoken by the interviewers. Interviews were therefore conducted in Bengali with the help of a semi-structured questionnaire and the guided field-walk method of Martin (1995) and Maundu (1995). In this method, the healer took the interviewers on guided field-walks through areas from where he collected his medicinal plants, pointed out the plants, and described their uses. Plant specimens were photographed and collected on the spot, pressed and dried, and later brought back to Dhaka to be identified by Mr. Manjur-Ul-Kadir Mia, ex-Curator and Principal Scientific Officer of the Bangladesh National Herbarium.

Results and Discussion

The Sigibe clan of the Khumi indigenous community can be found in Thanchi Upazila (sub-district) of Bandarban district in a village called Hoitong Khumi Para (Para means village or a gathering of households). The total population of the village was 512. Of the total population, 207 were females and 305 persons were males.

They claimed to have arrived at their present habitat from Burma, presently known as Myanmar. They are mainly Buddhists, but in recent years some are converting to Christianity. The Khumis have 100 or more sects in Myanmar; however, only 20-30 sects are present in Bangladesh. The more populous sects in Bangladesh include the Sigibe, Samthang, Buinti, Amtang, Limla, Longwaichu, Umching, and Natacho. Most of these sects have recently converted to Christianity.

The main occupation of the Khumis was jhum cultivation, where a forest tract is burnt down to clear land. The land is then cultivated for a few years and when it loses its natural fertility, a new forest tract is burnt and the old tract allowed reverting back to fresh forests. Side-by-side with agricultural occupation, the Khumis also kept domesticated poultry, jungle fowl, and francolins (titir in Bengali, a sort of wild turkey but much less in size and of a different color than the American turkey). They also reared pigs and maintained herbal gardens by their homesteads. The Khumis were practically illiterate; their main livelihood was jhum cultivation.

Among the social and religious festivals of the Khumis were marriage, Buddha Purnima (celebration of Lord Buddha on the night of a full moon), Christmas day, and Khumi song festivals. Marriage was the most remarkable among these festivals. Although their daily diet consisted of rice, various hill vegetables, and poultry, during their marriage festivals, the Khumis ate pork and locally made wine. Various traditions were maintained during these marriage festivals. Since Khumi society is matriarchal, the groom's father usually takes the proposal to the bride's house. During this time, the groom's father takes with him gifts such as poultry, spears, wine and cooked food. If bride's father agrees, only then the marriage can take place. The groom's father is then gifted by the bride's father with 31 chickens, 20,000 Takas (Bangladesh currency), 20 silver coins, 11 spears, 8 bottles of wine, and 2 earthen pots of marijuana. The bride's father is gifted by the groom's father with 1 pig, 5-6 white dresses, jhinge (ridge gourd, a type of vegetable), chickens, one machete, and one axe. Following exchange of gifts, partaking of food and marriage festivals take place at the bride's home after arrival of guests and the groom with his family. Before taking the bride away, the groom's family sits on the 'uthan' (a flat stretch of clear land in front of every rural home in Bangladesh including the Khumis). The elders then bless the bride and groom. The bride is then taken to the groom's house, where another round of eating and merriment takes place. Usually, a marriage festival continues all throughout the day till the evening. During these festivals, the Khumis used to converse only in the Khumi language and wear their traditional clothings. But now under the influence of the mainstream Bengali-speaking culture, conversations may be in Bengali, and the Khumis may wear modern clothing. Among the traditional dresses of the Khumis are the 'ninalenche' of the women and the 'lungis' of the men. Khumi women also wear on their wrist during festival times, 'ghungur' (bangle like silver bells), and bangles made of wood and various metals like gold, silver or copper. The women also wear around their necks floral garlands, and necklaces made of coin-like parts with multiple lockets, various bead necklaces, and necklaces made of seeds of multiple wild plants. The women also wear ear rings during these festivals.

Ear rings occupy an important status within Khumi women. Although the ears of a girl or woman may be pierced before marriage, specially made ear rings are only worn from the day of their marriage. Silver ear rings are preferred over other metals. The ear rings are bell-shaped. The size of the ear rings increase with a girl's age

of marriage. If following marriage, the woman becomes a widow, she immediately takes off the ear rings. The dead may be cremated or buried following the social and religious traditions of the Khumis.

Khumi song festivals can take place after marriage, in which festivals the marijuana and wine received as marriage gifts play an important role in turning on the festivities. All households of a Khumi village participate in these song festivals from the very young to the very old. The songs are sung till midnight. Following this song festival, the bride and groom starts their conjugal life.

A total of 36 formulations were obtained from the healer, which is shown in Table 1. In the various formulations, the healer used 41 plant species, of which 33 could be identified and 8 remained unidentified. The 33 identified plant species belonged to 23 families. The results are shown in Table 2. The Chittagong Hill Tracts is a region of remarkable plant diversity, and in the absence of a comprehensive survey till present, it is no surprise that so many plants could not be identified. Just this fact alone highlights the importance of conducting ethnobotanical surveys in this region of Bangladesh towards possible discovery of new plant species.

Table 1: Medicinal plants used and ailments treated by the healer of the Sigibe clan of the Khumi tribe.

Serial Number	Ailment with symptoms	Formulation and dosage	Local name of plants/ingredients used
1	Body pain (in any part of the body).	Leaves of <i>Jatropha gossypifolia</i> L. (Euphorbiaceae) (red or green-stemmed varieties) are folded, warmed over a fire and applied to painful areas thrice daily.	<i>Jatropha gossypifolia</i> : Litrobihom
2	Kidney stones.	Paste of roots and leaves of <i>Jasminum arborescens</i> Roxb. (Oleaceae) is warmed and applied to the region under the navel for two consecutive nights.	<i>Jasminum arborescens</i> : Tangna chuppa
3	Stomach pain (due to clotting of blood in the stomach).	Roots of <i>Typhonium trilobatum</i> (L.) Schott (Araceae) is cut into small pieces, inserted into a ripe banana and swallowed thrice daily till cure.	<i>Typhonium trilobatum</i> : Kamtha king
4	Dizziness because of high fever.	Paste of leaves of <i>Prismatomeris albidiflora</i> Thwaites (Rubiaceae) is warmed and applied to the forehead. At the same time, leaves are warmed in water and the water used to wash the head thrice daily till cure.	<i>Prismatomeris albidiflora</i> : Lumae kiu
5	Irregular menstruation.	Three fingers width of roots of <i>Cyclea barbata</i> Miers (Menispermaceae) is crushed by rubbing between two pieces of stones ('pata', where the lower stone is flat and rectangular and the upper stone is oval-shaped). The resultant juice is mixed with water and taken thrice daily on an empty stomach. If irregular menstruation persists, the upper part of the plant is rubbed similarly and the juice orally taken.	<i>Cyclea barbata</i> : Ajung hai kiu
6	Ringworm infection (itching in rounded spots occurring in various parts of the body).	Paste of leaves of <i>Derris robusta</i> (Roxb. ex DC.) Benth. (Fabaceae) and leaves of 'akangde ajhuh' (unidentified plant) is applied to affected areas once daily for 7 days.	<i>Derris robusta</i> : Slaiachi kiu Unidentified: Akangde ajhuh
7	Throat pain due to cold and coughs.	Paste of leaves and roots of <i>Justicia gendarussa</i> Burm.f. (Acanthaceae) is mixed with water. Three finger widths of this mixture are taken thrice daily (i.e. when the mixture is poured in a glass or cup, the amount should not exceed the width of three fingers when placed on the side of the glass or cup).	<i>Justicia gendarussa</i> : Haing kiu
8	Frequent passing of watery stool with fever.	Roots of <i>Lepisanthes senegalensis</i> (A. Juss. ex Poir.) Leenh. (Sapindaceae) is rubbed on a 'pata' and mixed with three finger width of water (that is when water is poured in a glass or cup, the amount should not exceed the width of three fingers when placed on the side of the glass or cup). The mixture is taken thrice daily on an empty stomach.	<i>Lepisanthes senegalensis</i> : Aborchajung kiu
9	Burning sensations in the chest, salty taste in mouth when burping, flatulence, gastric pain.	Leaves and roots (alternately leaves) of <i>Clerodendrum viscosum</i> Vent. (Verbenaceae) and <i>Hyptis capitata</i> Jacq. (Lamiaceae) are macerated together to obtain juice, which is mixed with water so the final volume when put in a glass or cup is three fingers width. The mixture is taken orally.	<i>Clerodendrum viscosum</i> : Haro kiu <i>Hyptis capitata</i> : Haro kalaee (shada, i.e. white variety)
10	Severe fever with blurred eyesight due to fever.	Leaves of <i>Clausena heptaphylla</i> (Roxb. ex DC.) Wight & Arn. ex Steud. (Rutaceae) are boiled in water and then cooled followed by pouring over the head. This is done thrice daily.	<i>Clausena heptaphylla</i> : Ushae kiu
11	Severe fever, red color of urine, pain in the urinary bladder.	Roots of <i>Lygodium flexuosum</i> (L.) Sw. (Lygodiaceae) and <i>Helminthostachys zeylanica</i> L. (Helminthostachyaceae) are crushed and added to three finger widths of water (when the water is poured into a cup or glass) and taken thrice on an empty stomach.	<i>Lygodium flexuosum</i> : Acha khung (choto, i.e. small) <i>Helminthostachys zeylanica</i> : Acha khung puin (boro, i.e. large)
12	If blood rises to the head of the delivering mother	Leaves and roots of Lehu tai jhung (unidentified) are made into a paste and mixed with water. Three finger widths of the mixture (when put in a cup or glass) is taken thrice	Unidentified: Lehu tai jhung

	during childbirth.	daily. At the same time, leaves are boiled in water and the water cooled and poured over the head.	
13	Abscess.	Paste of leaves of <i>Hedyotis scandens</i> Roxb. (Rubiaceae) is applied over the abscess.	<i>Hedyotis scandens</i> : Nang ree kiu
14	Ear ache.	Paste prepared from leaves of <i>Streblus asper</i> Lour. (Moraceae) is mixed with water. Three drops are put inside the ear canal thrice.	<i>Streblus asper</i> : Benae kiu
15	Tearing of tendons.	Paste of leaves of Blau chay adi (unidentified) is applied to the affected area and the area tied with a piece of cloth for 7 days. During this time, the affected area should not be in contact with water.	<i>Unidentified</i> : Blau chay adi
16	Joint pain.	Leaves and roots of <i>Datura metel</i> L. (Solanaceae) are turned into a paste and applied to affected areas followed by bandaging the area(s) with a piece of cloth. The bandage is changed every morning. At first, leaves are used. But if pain persists, roots are used with leaves.	<i>Datura metel</i> : Dhutura
17	Snake bite.	Roots of <i>Sterculia colorata</i> Roxb. (Sterculiaceae) are applied first to the bitten area followed by application of the middle part of fruits of <i>Amorphophallus krausei</i> Engl. (Araceae) to the bitten area.	<i>Sterculia colorata</i> : Pukai chi <i>Amorphophallus krausei</i> : Yang kiu
18	Constipation.	Roots of <i>Rauwolfia serpentina</i> (L.) Benth. ex Kurz. (Apocynaceae) are crushed, mixed with water and taken thrice daily on an empty stomach till cure.	<i>Rauwolfia serpentina</i> : Mohora kiu
19	To stop vomiting.	Roots of Bivvi tai jhung (unidentified) are crushed and mixed with sugar and water. Three fingers width of the mixture when poured in a glass or cup is taken thrice daily.	<i>Unidentified</i> : Bivvi tai jung
20	Flatulence.	Roots of <i>Tabernaemontana recurva</i> Roxb. ex Lindl. (Apocynaceae) are crushed to obtain juice. Three finger widths of the juice when poured in a cup or glass is taken thrice daily on an empty stomach.	<i>Tabernaemontana recurva</i> : Aambhu kiu
21	Jaundice (yellowish coloration of eyes and urine, headache).	Stems and leaves of <i>Cissus repens</i> Lam. (Vitaceae) are cooked with two freshwater crabs [<i>Pyxidognathus fluviatilis</i> Alcock (Parathelphusidae)] and eaten as vegetable.	<i>Cissus repens</i> : Aarorae kiu <i>Pyxidognathus fluviatilis</i> : Kakra
22	Cuts and wounds.	Paste prepared from leaves of <i>Eupatorium odoratum</i> L. (Asteraceae) are applied to cuts and wounds.	<i>Eupatorium odoratum</i> : Boila kiu
23	Becoming afraid (may be an obsession, sees with blurred vision due to fear).	Roots of Lahi kiu are tied with a gold or silver piece around the throat.	<i>Unidentified</i> : Lahi kiu
24	Severe stomach ache.	Roots of <i>Clerodendrum nutans</i> Wallich (Verbenaceae) are macerated and mixed with water and salt. Three finger widths of the mixture when put in a glass or cup is taken orally thrice daily on an empty stomach.	<i>Clerodendrum nutans</i> : Tera tabba
25	Severe headache.	Paste prepared from leaves of <i>Ageratum conyzoides</i> L. (Asteraceae) and Kola acha (unidentified) is applied to the head.	<i>Ageratum conyzoides</i> : Kai saeprum <i>Unidentified</i> : Kola acha
26	Long-term fever.	Leaves and stems of <i>Anisomeles ovata</i> R.Br. (Lamiaceae) are macerated to obtain juice, which is then taken with sugar thrice daily. Dosage is three finger widths when the juice is poured in a cup or glass.	<i>Anisomeles ovata</i> : Acha muchu kiu
27	Hiccups.	Juice obtained from macerated leaves of <i>Kaempferia parviflora</i> Wall. (Zingiberaceae) is mixed with water and sugar. Two finger widths of the mixture when poured in a cup or glass is taken orally thrice daily.	<i>Kaempferia parviflora</i> : Promui kiu
28	Oral and anal infections.	Juice obtained from macerated soft stems of <i>Euphorbia hirta</i> L. (Euphorbiaceae) is applied to affected areas.	<i>Euphorbia hirta</i> : Bae acha
29	Swelling due to injury.	Leaves of <i>Mimosa pudica</i> L. (Fabaceae) are boiled in water followed by washing the affected area with the water.	<i>Mimosa pudica</i> : Ajing kiu
30	To get rid of pus and infected material from abscess.	Leaves of <i>Cnesmone javanica</i> Blume (Euphorbiaceae) are applied to abscess.	<i>Cnesmone javanica</i> : Oumi kiu
31	Scabies, itches.	Leaves of <i>Azadirachta indica</i> A. Juss. (Meliaceae) are boiled in water followed by washing affected areas of the skin with the water.	<i>Azadirachta indica</i> : Ong way kiu
32	Severe headache and dizziness because of adverse effects from other medicines.	Leaves of <i>Pteris quadriaurita</i> Retz. (Pteridaceae) are warmed in water followed by drinking the water. Alternately, leaves are cooked and eaten as vegetable.	<i>Pteris quadriaurita</i> : Anch kae
33	Loss of appetite following fever.	Leaves of <i>Commelina hasskarlii</i> Clarke (Commelinaceae) are cooked and eaten as vegetable.	<i>Commelina hasskarlii</i> : Aan deuchi
34	Asthma (respiratory difficulties, coughs).	Roots of Aamha ajhung (unidentified) are crushed, mixed in water and three finger widths of the mixture (when poured in a cup or glass) is taken thrice daily on an empty stomach.	<i>Unidentified</i> : Aamha ajhung

35	Abscess on the bottom of foot.	Sap of fruit of <i>Ficus hirta</i> Vahl. (Moraceae) is applied to abscess and the foot is bandaged for 7 days.	<i>Ficus hirta</i> : Mung ponga kiu
36	Burning sensations in the chest, heavy breathing, pain in different parts of the abdomen.	Fruits and roots of Aju kommovae (unidentified) are turned into a paste and the juice obtained is taken thrice daily on an empty stomach. Dosage is three finger widths of the juice when poured in a cup or glass.	<i>Unidentified</i> : Aju kommovae

Table 2: Family-wise distribution of medicinal plants used by the healers of the Sigibe clan of the Khumi tribe.

Serial Number	Plant name	Family
1	<i>Justicia gendarussa</i> Burm.f.	Acanthaceae
2	<i>Rauwolfia serpentina</i> (L.) Benth. ex Kurz.	Apocynaceae
3	<i>Tabernaemontana recurva</i> Roxb. ex Lindl.	Apocynaceae
4	<i>Amorphophallus krausei</i> Engl.	Araceae
5	<i>Typhonium trilobatum</i> (L.) Schott	Araceae
6	<i>Ageratum conyzoides</i> L.	Asteraceae
7	<i>Eupatorium odoratum</i> L.	Asteraceae
8	<i>Commelina hasskarlii</i> Clarke	Commelinaceae
9	<i>Cnesmone javanica</i> Blume	Euphorbiaceae
10	<i>Euphorbia hirta</i> L.	Euphorbiaceae
11	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae
12	<i>Helminthostachys zeylanica</i> L.	Helminthostachyaceae
13	<i>Derris robusta</i> (Roxb. ex DC.) Benth.	Fabaceae
14	<i>Mimosa pudica</i> L.	Fabaceae
15	<i>Anisomeles ovata</i> R.Br.	Lamiaceae
16	<i>Hyptis capitata</i> Jacq.	Lamiaceae
17	<i>Lygodium flexuosum</i> (L.) Sw.	Lygodiaceae
18	<i>Azadirachta indica</i> A. Juss.	Meliaceae
19	<i>Cyclea barbata</i> Miers	Menispermaceae
20	<i>Ficus hirta</i> Vahl.	Moraceae
21	<i>Streblus asper</i> Lour.	Moraceae
22	<i>Jasminum arborescens</i> Roxb.	Oleaceae
23	<i>Pteris quadriaurita</i> Retz.	Pteridaceae
24	<i>Hedyotis scandens</i> Roxb.	Rubiaceae
25	<i>Prismatomeris albidiflora</i> Thwaites	Rubiaceae
26	<i>Clausena heptaphylla</i> (Roxb. ex DC.) Wight & Arn. ex Steud.	Rutaceae
27	<i>Lepisanthes senegalensis</i> (A. Juss. ex Poir.) Leenh.	Sapindaceae
28	<i>Datura metel</i> L.	Solanaceae
29	<i>Sterculia colorata</i> Roxb.	Sterculiaceae
30	<i>Clerodendrum nutans</i> Wallich	Verbenaceae
31	<i>Clerodendrum viscosum</i> Vent.	Verbenaceae
32	<i>Cissus repens</i> Lam.	Vitaceae
33	<i>Kaempferia parviflora</i> Wall.	Zingiberaceae

The Khumi healer was observed to treat mostly common diseases like various types of pain, kidney stones, dizziness induced by high fever, irregular menstruation, ringworm infection, fever with frequent passing of watery stool, gastric problems, severe fever, abscess, tearing of tendons, snake bite, jaundice, cuts and wounds, oral and anal infections, swelling due to injury, scabies and itches, asthma, and severe headache and dizziness because of adverse effects from other medicines. Various types of pain included body pain (in any part of the body), stomach pain, throat pain, ear ache, joint pain, and pain in different parts of the abdomen. Fever along with symptoms arising from fever was also treated by the healer. These included loss of appetite following fever, long-term fever, frequent passing of watery stool with fever, dizziness because of high fever, and severe fever leading to blurred eyesight. Two diseases treated could not be explained under conventional medical terms, namely blood rising to the head of the delivering mother during childbirth (Serial Number 12, Table 1), and becoming afraid (which could be an obsession and which leads to the person having blurred vision arising from fear, see Serial Number 23, Table 1).

Treatment with medicinal plants by the healer tended to be simple. As treatment of body pain, leaves of *Jatropha curcas* were simply folded, warmed over a fire, and applied to painful areas thrice daily. For treatment of stomach pain, which somehow the healer diagnoses as arising from clotting of blood in the stomach, roots of *Typhonium trilobatum* were cut into small pieces, inserted into a ripe banana, and swallowed thrice daily till cure. Throat pain due to colds and coughs were treated with oral administration of a mixture made by mixing paste of leaves and roots of *Justicia gendarussa* with water. The dosage was three finger widths of the mixture when put in a glass or cup. Three finger widths seemed to be a common dose form of the healer. For instance, for treatment of frequent passing of watery stool with fever, three finger width of water was mixed with macerated roots (macerated by rubbing between two pieces of stone called 'pata') of *Lepisanthes senegalensis* and taken orally. For treatment of irregular menstruation, three finger widths of roots of *Cyclea barbata* were crushed with a 'pata' and the resultant juice obtained mixed with water and taken orally.

It was of interest to compare the ethnomedicinal uses of medicinal plants by the Khumi healer with reported ethnomedicinal uses among other indigenous communities of the world, including Bangladesh. *Jatropha gossypifolia*, used by the Khumi healer for treatment of body pain is reportedly used by the tribals of Kinwat forest of Nanded district in Maharashtra, India for treatment of typhoid (Biradar and Ghorband, 2010). *Typhonium trilobatum* (used by the Khumi healer for treatment of stomach pain) is used by the Tripuri tribe of Tripura state in India for treatment of stomach complaints (Das *et al.*, 2012b). It is to be noted that Tripura state in India is adjacent to Chittagong Hill Tracts region of Bangladesh, where the Khumi tribe resides. *Cyclea barbata* is used by the Chakma tribe of Chittagong Hill Tracts region in Bangladesh for treatment of allergy (Khisa *et al.*, 2012). The Khumi healer used this plant for treatment of irregular menstruation. *Derris robusta*, used by the Khumi healer for treatment of ringworm infection, is also used by the Chakma tribe, but for the treatment of wounded limbs (Khisa *et al.*, 2012). *Justicia gendarussa*, used by the Khumi healer for treatment of throat pain due to cold and coughs, is used by the Mullu kuruma tribe of Wayanad district in Kerala, India for treatment of rheumatism (Silja *et al.*, 2008).

Medicinal men ('Maibas') of the sacred groves of Manipur, India use *Clerodendrum viscosum* for treatment of poisonous bites (Khumbongmayum *et al.*, 2005); the Khumi healer used this plant along with *Hyptis capitata* for treatment of burning sensations in the chest, salty taste in mouth when burping, flatulence, and gastric pain. *Hyptis capitata* is used by the Marma tribe of Chittagong Hill Tracts region of Bangladesh for treatment of malaria (Biswas *et al.*, 2010). *Clausena heptaphylla*, used by the Khumi healer for treatment of severe fever blurred vision due to fever, is reportedly used by the Nchangtabu and Arhiksi (Hill tribes) and Pan-Machala (Plain tribe) of Assam in India for treatment of jaundice (Purkayastha and Nath, 2006). *Lygodium flexuosum*, used by the Khumi healer (along with *Helminthostachys zeylanica*) for treatment of severe fever, red color of urine, pain in the urinary bladder is used by local peoples of Amarkantak region, Madhya Pradesh, India to treat menorrhagia, insect bite, rheumatism, sprains, scabies, ulcers, eczema, cuts, wounds, and carbuncles (Srivastava *et al.*, 2012). *Helminthostachys zeylanica* is used by the local people and tribes of Kolli Hills in namakkal district of Tamil Nadu, India for vitality and as a brain tonic (Perumal, 2010).

Hedyotis scandens was used by the Khumi healer to treat abscess; the Chutia, Sonowal-kachari, Tai-Ahom and Ao-Naga ethnic groups of Disoi Valley Reserve forest of Jorhat district in Assam, India use the plant for treatment of urinary and kidney disorder (Borah *et al.*, 2012). *Datura metel*, used by the Khumi healer for treating joint pain is used by tribal and rural people of West Rarrh region of West Bengal, India to treat alopecia (Ghosh, 2008). Tribals of India, Nepal and Bangladesh use the plant *Rauwolfia serpentina* to treat a wide variety of ailments like snake bite, insect and animal bite, mental illness, schizophrenia, hypertension, blood pressure, gastrointestinal diseases, circulatory disorders, pneumonia, fever, malaria, asthma, skin diseases, scabies, eye diseases, spleen diseases, AIDS, rheumatism, body pain, and veterinary diseases (Dey and De, 2011); the Khumi healer used the plant for treatment of constipation. The Khumi healer used the plant *Tabernaemontana recurva* for treatment of flatulence; the plant is used by the Chakma tribe of Chittagong Hill Tracts Division of Bangladesh to treat fever (Khisa *et al.*, 2012). *Cissus repens*, used by the Khumi healer for treatment of jaundice, is used by the people of Golaghat district in Assam, India for treatment of muscular pain and stomach disorders. The plant is additionally consumed by the people as a vegetable (Barukial and Sarmah, 2011).

Eupatorium odoratum was used by the Khumi healer to treat cuts and wounds; the tribals of Mizoram State, India use the plant also for treatment of cuts and wounds (Bhardwaj and Gakhar, 2005). The plant, *Ageratum conyzoides* was used by the Khumi healer to treat severe headache; the Adi tribes of Lower Dibang valley district of Arunachal Pradesh, India use the plant to stop bleeding from wounds (Gibji *et al.*, 2012). *Euphorbia hirta* was used by the Khumi healer to treat oral and anal infections; The plant is used in traditional medicines of Kikuku village, Muleba district of the Kagera region in north western Tanzania for treatment of non-lactation, hypertension, warts and cataracts (Moshi *et al.*, 2012). *Mimosa pudica*, used by the Khumi healer to treat swelling due to injury is used by the Gond tribe of Bhandara district, Maharashtra, India as an aphrodisiac and strength promoter (Gupta *et al.*, 2010). *Azadirachta indica* was used by the Khumi healer to treat scabies and itches; the traditional healers in Kancheepuram district of Tamil Nadu, India use the plant to treat small pox, rheumatism, and skin diseases (Muthu *et al.*, 2006). *Ficus hirta* was used by the Khumi healer to treat abscess on the bottom of foot. The same plant is used by the Apatani tribe of Arunachal Pradesh in the Eastern Himalayan region, India to treat cuts and wounds (Kala, 2005).

Taken together, the various reports indicate the wide diversity of ethnomedicinal uses of the same plant species in various regions of the world and among various tribes or local people. The Khumi healer's use of many of the plants as described in the present study is unique and adds significantly to the ethnomedicinal literature. It is expected that this study will go quite some way in preserving the traditional medicinal practices of the Khumi tribe and also spur conservation efforts to protect these medicinal plant species.

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