



ISSN (E): 2320-3862
ISSN (P): 2394-0530
NAAS Rating: 3.53
JMPS 2018; 6(5): 110-113
© 2018 JMPS
Received: 08-07-2018
Accepted: 10-08-2018

Sweety Rani Saha
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Faruk Hossain
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Ramjan Sarder
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Muslima Akter
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Nazma Hasan
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Zahura Binte Haque
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Emranul Haque Apu
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Audity Hossain
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Sharmin Akter
Department of Pharmacy, University of
Development Alternative, Lalmatia,
Dhaka, Bangladesh

Ishita Malek
Department of Pharmacy, University of
Development Alternative,
Lalmatia, Dhaka, Bangladesh

Mohammed Rahmatullah
Department of Pharmacy,
University of Development
Alternative, Lalmatia, Dhaka,
Bangladesh

Correspondence

Mohammed Rahmatullah
Department of Pharmacy,
University of Development
Alternative, Lalmatia, Dhaka,
Bangladesh

Some medicinal plant uses of a Santal community at Malar para village in Dinajpur district, Bangladesh

**Sweety Rani Saha, Faruk Hossain, Ramjan Sarder, Muslima Akter,
Nazma Hasan, Zahura Binte Haque, Emranul Haque Apu, Audity
Hossain, Sharmin Akter, Ishita Malek and Mohammed Rahmatullah**

Abstract

The Santal community represents the largest and possibly the oldest tribal community inhabiting the northwestern regions of Bangladesh. Due to their long acquaintance with their habitat, the Santal tribal medicinal practitioners have been found to be quite knowledgeable about therapeutic uses of medicinal plants. In recent years, however, because of loss of habitat and conversion of the community to other religions, the Santal medicinal practitioners have become dispersed and so is their phytotherapeutic knowledge, which is on the verge of becoming lost. Since plants have from ancient times formed excellent sources of modern drugs, the objective of the present study was to document the phytotherapeutic knowledge of a Santal medicinal practitioner (SMP) at Malar para village in Dinajpur district, which is at the northwestern part of Bangladesh. Although the SMP was found to use only eight plants distributed into eight families, the phytotherapeutic uses of the plants were quite novel thus justifying the need to document the medicinal practices of indigenous people. The various plants were used to treat ailments like respiratory tract disorders, pain, fever, diabetes, heart disorders, skin diseases, night blindness, and spleen disorders. The plants used for treatment of diabetes and heart disorders can prove useful in the treatment of these two complicated ailments. Cumulatively, the plants may prove useful in the discovery of new drugs.

Keywords: Santal, phytotherapy, Dinajpur, Bangladesh

Introduction

Ethnopharmacology, ethnomedicine and ethnobotany have proved to be powerful tools in the quest for new drugs to combat diseases. From their very advent, human beings most possibly have had diseases, and plants may have proved to be effective remedies against the diseases. These remedies have been documented from the time human beings learned to preserve information on various objects through writing or inscriptions. Egyptian, Mesopotamian, Indian, Chinese and other civilizations all developed their own unique medicinal systems with a common emphasis on phytotherapy [1]. Since ancient times, plants have proved themselves to be good sources of cure and discovery of new drugs because of the long association between human beings and plants. In fact, many modern drugs like reserpine, vincristine, vinblastine, taxol, and quinine, to name only a few have been discovered from close observations of the medicinal practices of indigenous peoples [2].

Documentation of medicinal plants has been for long a neglected area in Bangladesh. Yet, the country although small, has over 6000 floral species and a number of traditional medicinal systems co-existing with allopathic medicine. We had been conducting ethnomedicinal surveys for over ten years among mainstream folk medicinal practitioners (FMPs) and tribal medicinal practitioners (TMPs) as our primary informants but also collecting information on home remedies [3-22]. The objective of the present study was to document some medicinal plants used by a Santal medicinal practitioner (SMP) at Malar para village in Dinajpur district, Bangladesh. The Santals form the largest and possibly the most ancient tribal community and are presently scattered in various districts in the northwestern part of Bangladesh. They have a rich tradition of their medicinal practices, which is rapidly being forgotten because of loss of habitat and conversion of the tribe to other religions.

Materials and Methods

Information was obtained from the SMP Abraham (male, following conversion was given the name Abraham by Christian missionaries). Informed Consent was obtained from him to publish or disseminate the obtained information. The interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method of Martin [23] and Maundu [24]. In this method the SMP took the interviewers on guided field-walks through areas from where he collected his medicinal plants, pointed out the plants, and described their uses. Local plant names as given were in the Santal language. The plants were photographed, and voucher specimens collected, dried and identified by a competent botanist at the Bangladesh National Herbarium at Dhaka and accession numbers obtained. Plant specimens were deposited with the Medicinal Plant Collection Wing of the University of Development Alternative.

Results and Discussion

The various plant species along with their therapeutic uses are shown in Table 1. Altogether eight plant species were used, which were distributed into eight families. The various plants were used to treat ailments like respiratory tract disorders, pain, fever, diabetes, heart disorders, skin diseases, night blindness, and spleen disorders. In three cases whole plants were used and the plants were used for treatment of diverse types of diseases. For instance, whole plants of *Achyranthes aspera* were used to treat coughs, cold, insect bite, toothache, shortness of breath. Thus two diverse forms of ailment like respiratory disorders and pain were treated with the same plant. This suggests that the SMP was quite aware that any given plant may have diverse therapeutic properties. The antinociceptive properties of leaves of *Achyranthes aspera* have been described [25], making the plant a good candidate for alleviating toothache. Traditional healers in India use the plant to treat coughs, cold and bronchitis [26]. *Costus speciosus* was used by the SMP to treat asthma, fever and rash. The anti-inflammatory and anti-pyretic properties of

the plant have been reported [27]. The anti-diabetic properties of *Coccinia grandis* have also been reported [28]; notably, the SMP used the plant for treatment of diabetes, heart disorders, and scabies. Leaf extract of the plant has also been shown to give hypolipidemic effects, which can be beneficial in cardiovascular disorders [29]. In Unani system of medicine, the plant is also used to treat scabies [30]. The SMP used *Cajanus cajan* against diarrhea and toothache. Interestingly, leaves of the plant were used against diarrhea and roots used against toothache. Antibacterial activity of the plant has been found against coliforms [31]. Antinociceptive activity has been observed with seeds [32]; however, the SMP used roots against toothache.

The leaves of *Ocimum sanctum* were used against common cold, cough, dysentery and wound by the SMP. The anti-tussive action of the plant has been reported [33]. Activity of the plant against a number of enteric pathogens has been reviewed [34], suggesting that the plant may prove useful against gastrointestinal disorders like diarrhea and dysentery. Anti-microbial activity has been observed with *Adiantum caudatum* extracts [35], a plant used by the SMP against cough, fever, and skin diseases. *Spermacoce hispida* is considered an important herb in Siddha medicine of India, where among other uses the plant is also used for treatment of inflammation [36]. The SMP also used the plant as an anti-inflammatory agent. The SMP also used the plant against spleen disorders and more studies are needed to validate this particular use. *Boehmeria nivea* was used by the SMP as a diuretic and for treatment of fever. *Boehmeria* species are rich in antioxidants and so can prove useful in a variety of disorders [37].

Taken together, it becomes evident that age-old practices of indigenous medicinal practitioners have in recent years being continually validated through scientifically obtained evidences. Ethnopharmacology has become a valuable tool in the possibly forever quest for discovery of better drugs. As such, practices of indigenous medicinal practitioners, instead of being discarded, must be carefully documented before they get irretrievably lost.

Table 1: Medicinal plants and formulations of the Santal medicinal practitioner.

S.N.	Scientific Name (Accession Number)	Family Name	Local Name	Parts used	Ailments and mode of medicinal use
1	<i>Achyranthes aspera</i> L. (43737)	Amaranthaceae	Apank	Whole plant	Cough, cold, insect bite, toothache, shortness of breath. 50 ml of juice extracted from crushed whole plant is taken orally in the morning before meal for 5 consecutive days.
2	<i>Costus speciosus</i> (Koenig) Sm. (43747)	Costaceae	Kustha	Whole plant	Asthma, fever, rash. 25 ml juice extracted from crushed whole plant is taken orally twice daily before meals for 5 consecutive days.
3	<i>Coccinia grandis</i> (L.) Voigt (43734)	Cucurbitaceae	Telakucho	Leaf	Diabetes. 100 ml of juice extracted from crushed leaves is taken orally once daily before meal in the morning for 15 consecutive days. Heart disorder. About 250g leaves are cooked and eaten with meal twice daily in the afternoon and evening for 1 month. Scabies. Paste of leaf is topically applied to affected area(s).
4	<i>Cajanus cajan</i> (L.) Millsp. (43474)	Fabaceae	Hor hor	Leaf, root	Diarrhea. Juice extracted from crushed leaf is orally taken in the morning before meal for 7 consecutive days. Toothache. Roots are attached to gums.
5	<i>Ocimum sanctum</i> L. (43741)	Lamiaceae	Kalo tulsi	Leaf	Common cold, cough, dysentery, wound. 50 ml of juice extracted from crushed leaves is taken orally twice before meal in the morning and evening for 5 consecutive days.
6	<i>Adiantum caudatum</i> L. (43743)	Pteridaceae	Bidda pata	Whole plant	Cough, fever, skin diseases. 100 ml of juice extracted from crushed whole plant is taken orally twice daily in the morning and evening before meals for 5 days.
7	<i>Spermacoce hispida</i> L. (43738)	Rubiaceae	Madana	Leaf	Spleen disorders, night blindness, inflammation. Juice extracted from leaves is taken orally before meal at night once daily for 15 consecutive days.
8	<i>Boehmeria nivea</i> (L.) Gaudich (43745)	Urticaceae	Chottar pata	Leaf	Diuretic, fever. 50 ml juice obtained from crushed leaves is taken orally twice daily before meal in the morning and evening for 5 consecutive days.

References

- Subbarayappa BV. The roots of ancient medicine: an historical outline. *J Biosci.* 2001; 26(2):135-144.
- Mustafa G, Arif R, Atta A, Sharif S, Jamil A. Bioactive compounds from medicinal plants and their importance in drug discovery in Pakistan. *Mat Sc Pharm.* 2017; 1(1):17-26.
- Disha IT, Khatun Z, Rahmatullah M. Incantations, medicinal plants and formulations of the Rai Kshatriya tribe of Pabna District, Bangladesh. *Am.-Eur J Sustain Agric.* 2012; 6(4):304-314.
- Rahmatullah M, Ferdousi D, Mollik MAH, Jahan R, Chowdhury MH, Haque WM. A Survey of Medicinal Plants used by Kavirajes of Chalna area, Khulna District, Bangladesh. *Afr J Tradit Complement Alternat Med.* 2010; 7(2):91-97.
- Rahmatullah M, Khatun MA, Morshed N, Neogi PK, Khan SUA, Hossain MS *et al.* A randomized survey of medicinal plants used by folk medicinal healers of Sylhet Division, Bangladesh. *Adv Nat Appl Sci.* 2010; 4(1):52-62.
- Rahmatullah M, Kabir AABT, Rahman MM, Hossain MS, Khatun Z, Khatun MA *et al.* Ethnomedicinal practices among a minority group of Christians residing in Mirzapur village of Dinajpur District, Bangladesh. *Adv Nat Appl Sci.* 2010; 4(1):45-51.
- Rahmatullah M, Momen MA, Rahman MM, Nasrin D, Hossain MS, Khatun Z *et al.* A randomized survey of medicinal plants used by folk medicinal practitioners in Daudkandi sub-district of Comilla district, Bangladesh. *Adv Nat Appl Sci.* 2010; 4(2):99-104.
- Rahmatullah M, Mollik MAH, Ahmed MN, Bhuiyan MZA, Hossain MM, Azam MNK *et al.* A survey of medicinal plants used by folk medicinal practitioners in two villages of Tangail district, Bangladesh. *Am.-Eur J Sustain Agric.* 2010; 4(3):357-362.
- Rahmatullah M, Mollik MAH, Islam MK, Islam MR, Jahan FI, Khatun Z *et al.* A survey of medicinal and functional food plants used by the folk medicinal practitioners of three villages in Sreepur Upazilla, Magura district, Bangladesh. *Am.-Eur J Sustain Agric.* 2010; 4(3):363-373.
- Rahmatullah M, Jahan R, Khatun MA, Jahan FI, Azad AK, Bashar ABMA *et al.* A pharmacological evaluation of medicinal plants used by folk medicinal practitioners of Station Purbo Para Village of Jamalpur Sadar Upazila in Jamalpur district, Bangladesh. *Am.-Eur J Sustain Agric.* 2010; 4(2):170-195.
- Rahmatullah M, Ishika T, Rahman M, Swarna A, Khan T, Monalisa MN *et al.* Plants prescribed for both preventive and therapeutic purposes by the traditional healers of the Bede community residing by the Turag River, Dhaka district. *Am.-Eur J Sustain Agric.* 2011; 5(3):325-331.
- Rahmatullah M, Azam MNK, Rahman MM, Seraj S, Mahal MJ, Mou SM *et al.* A survey of medicinal plants used by Garo and non-Garo traditional medicinal practitioners in two villages of Tangail district, Bangladesh. *Am.-Eur J Sustain Agric.* 2011; 5(3):350-357.
- Rahmatullah M, Biswas KR. Traditional medicinal practices of a Sardar healer of the Sardar (Dhangor) community of Bangladesh. *J Altern Complement Med.* 2012; 18(1):10-19.
- Rahmatullah M, Hasan A, Parvin W, Moniruzzaman M, Khatun Z, Jahan FI *et al.* Medicinal plants and formulations used by the Soren clan of the Santal tribe in Rajshahi district, Bangladesh for treatment of various ailments. *Afr J Tradit Complement Alternat Med.* 2012; 9(3):350-359.
- Rahmatullah M, Khatun Z, Hasan A, Parvin W, Moniruzzaman M, Khatun A *et al.* Survey and scientific evaluation of medicinal plants used by the Pahan and Teli tribal communities of Natore district, Bangladesh. *Afr J Tradit Complement Alternat Med.* 2012; 9(3):366-373.
- Rahmatullah M, Azam MNK, Khatun Z, Seraj S, Islam F, Rahman MA *et al.* Medicinal plants used for treatment of diabetes by the Marakh sect of the Garo tribe living in Mymensingh district, Bangladesh. *Afr J Tradit Complement Alternat Med.* 2012; 9(3):380-385.
- Rahmatullah M, Khatun Z, Barua D, Alam MU, Jahan S, Jahan R. Medicinal plants used by traditional practitioners of the Kole and Rai tribes of Bangladesh. *J Altern Complement Med.* 2013; 19(6):483-491.
- Rahmatullah M, Pk SR, Al-Imran M, Jahan R. The Khasia tribe of Sylhet district, Bangladesh, and their fast-disappearing knowledge of medicinal plants. *J Altern Complement Med.* 2013; 19(7):599-606.
- Mahmud MR, Parvin A, Anny IP, Akter F, Tarannom SR, Moury SI, Joy SK, Akter S, Chowdhury SY, Chakraborty A, Azad AK, Rahmatullah M. Home remedies of village people in six villages of Dinajpur and Rangpur Districts, Bangladesh. *World J Pharm Pharm Sci.* 2015; 4(2):63-73.
- Nahar S, Rahmatullah M. Plants, animals, birds, insects, minerals – all are medicines to a folk medicinal practitioner in Nilphamari district, Bangladesh. *World J Pharm Pharm Sci.* 2016; 5(4):2422-2439.
- Akhter J, Khatun R, Akter S, Akter S, Munni TT, Malek I, Rahmatullah M. Ethnomedicinal practices in Natore district, Bangladesh. *World J Pharm Pharm Sci.* 2016; 5(8):212-222.
- Khatun A, Jannat K, Jahan R, Rahmatullah M. Some plant-based home remedies used in Narayanganj district, Bangladesh. *J Med Plants Stud.* 2018; 6(4):104-106.
- Martin GJ. *Ethnobotany: a 'People and Plants' Conservation Manual.* Chapman and Hall, London, 1995, 268.
- Maundu P. Methodology for collecting and sharing indigenous knowledge: a case study. *Indigenous Knowledge and Development Monitor.* 1995; 3(2):3-5.
- Chenchula S, Yakaiah V, Polasi R, Vishwe A, Chandel S, Seela V. Evaluation of anti-nociceptive activity of *Achyranthes aspera* Linn in experimental animal models. *Int J Appl Res.* 2015; 1(11):198-201.
- Verma S. A review study on *Achyranthes aspera* (Amaranthaceae) – A valuable medicinal herb. *J Med Plants Stud.* 2016; 4(3):6-7.
- Binny K, Sunil Kumar G, Dennis T. Anti-inflammatory and antipyretic properties of the rhizome of *Costus speciosus* (Koen.) Sm. *J Basic Clin Pharm.* 2010; 1(3):177-181.
- Attanayake AP, Jayatilaka KAPW, Mudduwa LKB. Anti-diabetic potential of ivy gourd (*Coccinia grandis*, family: Cucurbitaceae) grown in Sri Lanka: A review. *J Pharmacogn Phytochem.* 2016; 5(6):286-289.
- Rahman MS, Khan MMH, Karim MR, Rahman M, Ali L, Hossain IA, Siddique MAH, Biswas S, Asaduzzaman M, Munira S, Hasan N, Islam MA. Phytochemical analysis of *Coccinia grandis* (Cucurbitaceae) leaves extract and

- its effect on hepatic and cardiovascular disease (CVD) markers in alloxan induced diabetic rats. National Conference on Biochemistry, Industry and Sustainable Economy, Dhaka University, 2015.
30. Farrukh U, Shareef H, Mahmud S, Ali SA, Rizwani GH. Antibacterial activities of *Coccinia grandis* L. Pak J Bot. 2008; 40(3):1259-1262.
 31. Rahman MM, Uddin MS, Nejum MR, Al Din SMS, Sala Uddin GM. Study on antibacterial activity of *Cajanus cajan* L. against coliforms isolated from industrial waste water in Bangladesh. Plant. 2017; 5(5-1):13-18.
 32. Hassan EM, Matloub AA, Aboutabl ME, Ibrahim NA, Mohamed SM. Assessment of anti-inflammatory, antinociceptive, immunomodulatory, and antioxidant activities of *Cajanus cajan* L. seeds cultivated in Egypt and its phytochemical composition. Pharm Biol. 2016; 54(8):1380-1391.
 33. Nadig PD, Laxmi S. Study of anti-tussive activity of *Ocimum sanctum* Linn in guinea pigs. Indian J Physiol Pharmacol. 2005; 49(2):243-245.
 34. Siva M, Shanmugam KR, Bhasa S, Venkata G, Sahukari R, Sathyavelu K, Korivi M. *Ocimum sanctum*: a review on the pharmacological properties. Int J Basic Clin Pharmacol. 2016; 5(3):558-565.
 35. Pan C, Chen YG, Ma XY, Jiang JH, He F, Zhang Y. Phytochemical constituents and pharmacological activities of plants from the genus *Adiantum*: A review. Trop J Pharm Res. 2011; 10(5):681-692.
 36. Meti V, Chandrashekar K, Mishra S. Pharmacological activities of *Spermacoce hispida* Linn: A review. Int J Res Ayurveda Pharm. 2013; 4(1):18-22.
 37. Chen Y, Wang G, Wang H, Cheng C, Zang G, Guo X, Liu RH. Phytochemical profiles and antioxidant activities in six species of Ramie leaves. PLoS ONE. 2014; 9(9): e108140. doi:10.1371/journal.pone.0108140.