



RESEARCH ARTICLE

FOLK MEDICINAL PRACTICE IN DHAKA CITY – THE CAPITAL OF BANGLADESH

Antu Chandra Biswas<sup>1</sup>, Farhana Yesmin<sup>1</sup>, Khoshnur Jannat<sup>2</sup> and Mohammed Rahmatullah<sup>2\*</sup>

<sup>1</sup>Department of Pharmacy, University of Development Alternative, Lalmatia, Dhaka-1207, Bangladesh

<sup>2</sup>Department of Biotechnology & Genetic Engineering, University of Development Alternative, Lalmatia, Dhaka-1207, Bangladesh

ARTICLE INFO

Received 13<sup>th</sup> July, 2019  
Received in revised form 11<sup>th</sup>  
August, 2019  
Accepted 8<sup>th</sup> September, 2019  
Published online 28<sup>th</sup> October, 2019

Keywords:

Folk medicine, phytotherapy, Dhaka, Bangladesh

ABSTRACT

Folk medicinal practitioners (FMPs) generally practice in rural areas of Bangladesh but they can also be seen practicing in mega-cities like Dhaka with a population exceeding 15 million. Since FMPs do not require any formal training or registration, anybody can start folk medicinal practice so long the practicing person deems himself or herself to be knowledgeable in healing diseases, which may be one or two or many. Most such urban FMPs practice in open market areas like vegetable or fish markets, which are frequented by people with a wide range of income and literacy. Since in our previous studies we have documented the practices of FMPs in rural areas and small towns, the objective of this study was to document the practice of a FMP, who practiced in one of the densely populated areas of Dhaka city, the capital of Bangladesh. Like the rural FMPs, the mainstay of this urban FMP's remedies consisted of healing with plants. The FMP was found to use a total of eleven plants distributed into eleven families in his treatment. The FMP treated gonorrhoea, hair loss, baldness, skin disorders, excessive menstrual blood loss, and jaundice. Interestingly, besides plants, the FMP also used leeches in his treatment for hair loss and baldness.

Copyright © 2019 Antu Chandra Biswas et al., This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Folk medicine is arguably the most ancient, most diverse, and most simple form of traditional medicinal practices. Unlike other traditional practices of recent times, folk medicine (FM) practice does not need formal training, registration or even apprenticeship to practice. Anybody can be a folk medicinal practitioner (FMP) overnight following a dream of a recognized plant curing a recognized disease, or even an intuition that such or such plant may cure such or such disease. As such, FM is open to quackery but at the same time can prove to be an impressive source of phytotherapeutic knowledge, for most FMPs use plants as their main ingredient(s) in curing diseases (Hasan M.K., et al., 2013; Jamshidi-Kia F., et al., 2018), and quacks are easily eliminated by public pressure created by their inability to cure diseases.

FMPs can be said to comprise the first tier of primary health-care providers in Bangladesh. They are akin to tribal medicinal practitioners (TMPs), only that FMPs cater to the mainstream population rather than tribes. FMPs are ubiquitous in Bangladesh, being present in both rural areas, small towns and can even be observed in a metropolis like Dhaka city, the

capitol of Bangladesh with a population surpassing 15 million. In Dhaka, FMPs can be seen practicing in or around kitchen markets, which markets sell vegetables, fish and other sundry items. FMPs do not need large spaces; in fact very few of them sit or practice from rooms. Most sit by the roadside with dried and fresh medicinal plants and a number of bottles containing items only known to the FMP displayed on a piece of cloth in front of them. Their clientele in Dhaka city comprises of slum and the poorer sections of the population, although patients can also be seen coming in cars. In the 86,000 villages of Bangladesh, a FMP can practice from his or her own home and can even have his or her own medicinal plant garden. A FMP is usually called 'Kaviraj' or 'Vaidya' in Bengali. Bangladesh is a small country with an area of 56,980 square miles but with an amazing variety of floral species. Although not accounted for in a scientific manner even in recent times, it is believed that the number of floral species exceeds 5500. Possibly this factor has led to an immense diversity in the plants selected by FMPs and TMPs from even adjoining villages to treat the same disease, as found out in the various ethnobotanical surveys we had been conducting for the last eleven years (Anzumi H., et al., 2013; Rahmatullah M., et al., 2019; Shakera J., et al., 2019).

\*✉ Corresponding author: Mohammed Rahmatullah

Department of Biotechnology & Genetic Engineering, University of Development Alternative, Lalmatia, Dhaka-1207, Bangladesh

**Table 1** Medicinal plants and formulations of the FMP.

Serial Number	Scientific Name	Family Name	Local Name	Parts used	Ailments treated
1	<i>Mangifera indica</i> L.	Anacardiaceae	Aam	Seed	Gonorrhoea. 250g each of seeds of <i>Mangifera indica</i> , <i>Tamarindus indica</i> and <i>Syzygium cumini</i> are powdered, mixed together and boiled in water. Four teaspoons of the decoction is taken orally with half glass water in the morning and evening.
2	<i>Cocos nucifera</i> L.	Arecaceae	Narikel	Oil from fruit pulp	See <i>Aloe vera</i> .
3	<i>Aloe vera</i> L.	Asphodelaceae	Ghrito kumara	Leaf	Hair loss, baldness. Pulp within the leaf is taken out and mixed with the mucilaginous substance found on the body of leeches ( <i>Haemadipsa sylvestris</i> Tennent) and slightly heated in coconut oil (oil obtained from fruits of <i>Cocos nucifera</i> L.). The decoction is then cooled and then applied for 10 minutes to the scalp prior to bathing.
4	<i>Bryophyllum pinnatum</i> (Lam.) Oken	Crassulaceae	Pathorkuchi	Leaf	Kidney stone. Four teaspoons of leaf juice is taken orally for ten consecutive days in the morning on an empty stomach. Note, if cough is present, the juice has to be taken with a pinch of table salt.
5	<i>Tamarindus indica</i> L.	Fabaceae	Tetul	Seed	See <i>Mangifera indica</i> .
6	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Krishna tulsii	Leaf	Eczema. Leaf juice (half teaspoon) is mixed with 5g powdered sea salt (obtained by evaporating sea water in the sun) and applied topically in the morning and night.
7	<i>Lawsonia inermis</i> L.	Lythraceae	Mehedi	Leaf	Skin disorders. Pills prepared from paste of leaves and boiled rice are taken orally twice daily in the morning and night.
8	<i>Hibiscus rosa sinensis</i> L.	Malvaceae	Joba	Flower	Excessive menstrual blood loss. One teaspoon of flower paste is taken with one teaspoon ghee (clarified butter) orally twice daily in the morning and night.
9	<i>Musa sapientum</i> L.	Musaceae	Kola	Fruit	See <i>Santalum album</i> .
10	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Jaam	Seed	See <i>Mangifera indica</i> .
11	<i>Santalum album</i> L.	Santalaceae	Chandan	Wood	Jaundice. Four teaspoons of paste of wood are taken with half banana (fruit of <i>Musa sapientum</i> ) orally in the morning daily on an empty stomach.
Serial Number	Scientific Name	Family Name	Local Name	Parts used	Ailments treated
1	<i>Haemadipsa sylvestris</i> Tennent English: leech	Haemadipsidae	Joke	Slippery substance on external part of body	See <i>Aloe vera</i> .

Documentation of this diversity and plants selected with the disease(s) treated by the FMPs is important because plants, both in the past, present and foreseeable future can be sources of new drugs. The objective of this study was to document the phytotherapeutic practices of a FMP practicing in a densely populated area of Dhaka city in Bangladesh.

## METHODS

The information presented in this study was obtained from a FMP practicing in Mohammadpur area of Dhaka city. The FMP was known as Md. Ruhul Amin Kaviraj and had a good number of clientele as evidenced by the locals addressing him as Kaviraj and that he had his own room/chamber from where he examined his clients and dispensed medication(s). His room was beside the kitchen market known as Town Hall Market in Mohammadpur. Prior informed consent was initially obtained from the FMP. The FMP was informed the reason for our visit and consent obtained to disseminate any information provided both nationally and internationally. Actual interviews were conducted in the Bengali language, which was spoken fluently by the FMP as well as the interviewers, the language being the mother tongue of FMP and the interviewers. The FMP mentioned the names of plants and formulations and described their uses. The plant names happened to be common names and from the names the plants were identified by a competent botanist at the University of Development Alternative (UODA).

## RESULTS AND DISCUSSION

The FMP was found to use a total of eleven plants distributed into eleven families in his treatment. The FMP treated gonorrhoea, hair loss, baldness, skin disorders, excessive menstrual blood loss, and jaundice. The results are shown in Table 1. Interestingly, besides plants, the FMP also used a species of leech (*Haemadipsa sylvestris*) in his treatment for hair loss and baldness along with a plant, *Aloe vera*. Both monoherbal and polyherbal formulations were used by the FMP in his phytotherapeutic treatments.

Powdered seeds of *Mangifera indica*, *Tamarindus indica* and *Syzygium cumini* were boiled in water and the decoction administered orally with water by the FMP for treatment of gonorrhoea. It is to be noted that the seeds of all three plants are more widely known in traditional medicine (including Ayurveda and folk medicine) of the Indian sub-continent countries for treatment of diabetes (Rahmatullah M., et al., 2010; Biswas K.R., et al., 2011); the anti-diabetic/hypoglycemic properties of the seeds have also been shown in pharmacological studies (Rajesh M.S., and Rajasekhar J., 2014; Parvin A., et al., 2013; Binita K., Sharma V., and Yadav S., 2017). However, the use of *Tamarindus indica* for gonorrhoea treatment in traditional medicine has been reported (Bhadoriya S.S., et al., 2011). On the other hand, of the ten plant leaves tested in Nepal, *Syzygium cumini* leaf extract was the least inhibitory for *Neisseria gonorrhoea* (Bhargava D., et al., 2011). Thus this formulation of

the FMP merits attention as to its efficacy in the treatment of gonorrhoea, which has developed multidrug-resistant strains (Bodie M., et al., 2019).

The use of leech with *Aloe vera* by the FMP for treatment of hair loss and baldness is also a very unusual and to our knowledge, a previously unreported treatment for Bangladesh. To be noted that the FMP did not use leech for sucking blood (hirudotherapy); the FMP merely used the mucilaginous substance present on the body of a leech. *Aloe vera* is reportedly used in hair loss treatment (Sampath Kumar et al., 2010). Hirudotherapy is reportedly done as treatment for several types of alopecia, but that involves sucking of blood (Iqbal A., et al., 2015). *Bryophyllum pinnatum* is a well known plant for treatment of kidney stones by FMPs of Bangladesh (Muttaki A.A., et al., 2014). The plant also has been shown to have antiurolithiatic activity. Leaf extract of the plant has been reported to have the ability to dissolve calcium oxalate kidney stones (Phatak R.S. and Hendre A.S., 2015).

*Ocimum tenuiflorum* and *Lawsonia inermis* were two plants used against skin disorders by the FMP. The former is also used in Ayurveda against skin disorders, besides other diseases (Cohen M.M., 2014). The latter plant has also uses against skin pathogens (Sharma R.K., Goel A., Bhatia A.K., 2016) and has been reported to be used in other districts of Bangladesh against various skin disorders (Mahbub N., et al., 2017). *Hibiscus rosa sinensis* was used by the FMP against excessive menstrual blood loss. Similar uses of the plant have been reported before from Bangladesh amongst the Tudu sub-tribe of the Santal tribe in Joypurhat district (Zahan T., et al., 2013). Such uses can be based on actual properties of the flowers in stopping excessive menstrual bleeding; the choice may also be based on organoleptic properties (red flowers replacing loss of blood, which is red) (Leonti M., Sticher O., Heinrich M., 2002).

*Santalum album* has been found to be hepatoprotective against paracetamol induced hepatotoxicity in albino Wistar rats (Vengal Rao P., et al., 2014). It is possible that half of a banana (*Musa sapientum*) fruit advised to be taken with wood paste of *S. album* may be to make the paste palatable. Fruit peels of *Musa sapientum* have been reported to give hepatoprotective activity (Murthy S.S.N., et al., 2015); it is possible that fruits may also have hepatoprotective activity.

To conclude, since a number of the plants used by the FMP have been shown scientifically to be quite valid in their folk medicinal uses, these plants need to be further experimented upon and relevant bioactive phytochemicals identified towards discovery of possible new drugs. Such validation can serve two purposes, namely make available herbal drugs (which are lower in price to allopathic medicines) and support conservation of medicinal plants as a whole.

#### Acknowledgements

The authors wish to thank the FMP for providing information.

#### References

1. Anzumi H., Rahman S., Islam M.A., 2014. Uncommon medicinal plant formulations used by a folk medicinal practitioner in Naogaon district, Bangladesh. *World*

- Journal of Pharmacy and Pharmaceutical Sciences*; 3(12): 176-188.
2. Bhadoriya S.S., Ganeshpurkar A., Narwaria J., et al., 2011. *Tamarindus indica*: Extent of explored potential. *Pharmacognosy Review*; 5(9): 73-81.
3. Bhargava D., Kar S., Shivapuri J.N., et al., 2011. Screening of antigonorrhoeal activity of some medicinal plants in Nepal. *International Journal of Pharma and Bio Sciences*; 2(1): B-203-B-212.
4. Binita K., Sharma V., Yadav S., 2017. The therapeutic potential of *Syzygium cumini* seeds in diabetes mellitus. *Journal of Medicinal Plants Studies*; 5(1): 212-218.
5. Biswas K.R., Ishika T., Rahman M., et al., 2011. A review of scientific literature on anti-diabetic activity in medicinal plants used by folk medicinal practitioners of two villages in Narail and Chuadanga Districts, Bangladesh for treatment of diabetes. *American-Eurasian Journal of Sustainable Agriculture*; 5(2): 196-208.
6. Bodie M., Gale-Rowe M., Alexandre S., et al., 2019. Addressing the rising rates of gonorrhoea and drug-resistant gonorrhoea: There is no time like the present. *Canada Communicable Disease Report*; 45(2-3): 54-62.
7. Cohen M.M., 2014. Tulsi – *Ocimum sanctum*: A herb for all reasons. *Journal of Ayurveda and Integrative Medicine*; 5(4): 251-259.
8. Hasan M.K., Gatto P., Jha P.K., 2013. Traditional uses of wild medicinal plants and their management practices in Nepal – A study in Makawanpur district. *International Journal of Medicinal and Aromatic Plants*; 3(1): 102-112.
9. Iqbal A., Huma, Shah A., 2015. Role of leech therapy in alopecia barbae – a single case study. *International Journal of Latest Research in Science and Technology*; 4(1): 142-145.
10. Jamshidi-Kia F., Lorigooini Z., Amini-Khoei H., 2018. Medicinal plants: Past history and future perspective. *Journal of HerbMed Pharmacology*; 7(1): 1-7.
11. Leonti M., Sticher O., Heinrich M., 2002. Medicinal plants of the Popoluca, Mexico: Organoleptic properties as indigenous selection criteria. *Journal of Ethnopharmacology*; 81(3): 307-315.
12. Mahbub N., Mazumder S.H., Morshed M.Z., et al., 2017. Folk medicinal use of plants to treat skin disorders in Chandpur district, Bangladesh. *American Journal of Ethnomedicine*; 4(2): 19.
13. Murthy S.S.N., Jebakani C.F., Pandian S.S., et al., 2015. Hepatoprotective activity of *Musa sapientum* fruit peel (MSPE) against streptozotocin-induced toxicity in rats. *International Journal of Pharmacy*; 5(1): 165-169.
14. Muttaki A.A., Ahmed Z., Islam M.S., et al., 2014. Medicinal plants and formulations of a Unani folk medicinal practitioner of Bhola district, Bangladesh. *Journal of Chemical and Pharmaceutical Research*; 6(10): 231-238.
15. Parvin A., Alam M.M., Haque M.A., et al., 2013. Study of the hypoglycemic effect of *Tamarindus indica* Linn. seeds on non-diabetic and diabetic model rats. *British Journal of Pharmaceutical Research*; 3(4): 1094-1105.
16. Phatak R.S., Hendre A.S., 2015. *In-vitro* antiurolithiatic activity of *Kalanchoe pinnata* extract. *International*

- Journal of Pharmacognosy and Phytochemical Research*; 7(2): 275-279.
17. Rahmatullah M., Khatun M.A., Morshed N., et al., 2010. A randomized survey of medicinal plants used by folk medicinal healers of Sylhet Division, Bangladesh. *American-Eurasian Journal of Sustainable Agriculture*; 4(1): 52-62.
  18. Rahmatullah M., Jannat K., Nahar N., et al., 2019. Tribal medicinal plants: documentation of medicinal plants used by a Mogh tribal healer in Bandarban district, Bangladesh. *Archives of Pharmacy and Pharmacological Research*; 1(5):APPR.MS.ID.000523.
  19. Rajesh M.S., Rajasekhar J., 2014. Assesment of antidiabetic activity of *Mangifera indica* seed kernel extracts in streptozotocin induced diabetic rats. *Journal of Natural Remedies*; 14(1): 33-40.
  20. Sampath Kumar K.P., Bhowmik D., Chiranjib., et al., 2010. *Aloe vera*: A potential herb and its medicinal importance. *Journal of Chemical and Pharmaceutical Research*; 2(1): 21-29.
  21. Shakera J., Mandal R., Akter T., et al., 2019. Folk medicine in Bangladesh: Healing with plants by a practitioner in Kushtia district. *Archives of Pharmacy and Pharmacological Research*; 1(5): APPR.MS.ID.000525.
  22. Sharma R.K., Goel A., Bhatia A.K., 2016. *Lawsonia inermis* Linn: A plant with cosmetic and medical benefits. *International Journal of Applied Sciences and Biotechnology*; 4(1): 15-20.
  23. Vengal Rao P., Ashok Kumar C.K., Ashwini G., et al., 2014. Evaluation of hepatoprotective activity of *Santallum album* (stem) against paracetamol induced hepatotoxicity in albino Wistar rats. *International Journal of Innovative Pharmaceutical Research*; 5(1): 370-373.
  24. Zahan T., Ahmed I., Omi S.I., et al., 2013. Ethnobotanical uses of medicinal plants by the Tudu sub-clan of the Santal tribe in Joypurhat district of Bangladesh. *American-Eurasian Journal of Sustainable Agriculture*; 7(3): 137-142.

\*\*\*\*\*