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A Survey on Medicinal Plants used by the Folk Medicinal Practitioners in Tangail Sadar Upazilla, Tangail, Bangladesh

M. A. Haque[1], L. Bari[1], M. M. Hasan[1], M. M. Sultana[2], S. A. Reza[1*]

[1]Department of Food Technology and Nutritional Science,
Mawlana Bhashani Science and Technology University, Santosh, Tangail-1902
[2]Vrije University of Brussels, Brussels, Belgium

Abstract: Medicinal plants form an important and often the only component in the formulations used by the folk medicinal practitioners of Bangladesh for treatment of various ailments. Folk medicinal practitioners, otherwise known as Kavirajes, perform an integral role in the delivery of primary health-care to substantial segments of both rural and urban population of the country. To get a comprehensive view of the medicinal plants of Bangladesh, it is therefore important to conduct extensive interviews of individual Kavirajes of both urban and rural areas. Towards obtaining such comprehensive information, the present ethno-medicinal survey was conducted among the Kavirajes of 15 randomly surveyed villages of Tangail Sadar Upazila in Bangladesh to document their use of medicinal plants and the ailments treated by those plants. Information was obtained from the Kavirajes with the help of a semi-structured questionnaire and the guided field-walk method. The results showed that the Kavirajes of the 11 villages surveyed used a total of 55 plants distributed into 35 families in their formulations. The Mimoceseae family provided 4 plants, while the Acanthaceae, Liliaceae, Lamiaceae and Fabaceae families provided 3 plants each. Mainly leaves were used for this purpose. Other plant parts roots and stems were also used. The various ailments treated included gastrointestinal disorders, cuts and wounds, fever, respiratory tract disorders, snake bites, pain, menstrual problems, physical weakness, diabetes, mental disorders, cardiovascular disorders, skin disorders, chicken pox, burns, spermatorrhea, bone fractures and cattle ailments.

Key Words: Ethno-medicinal study, Kavirajes, Medicinal plants, Tangail sadar

Introduction

Bangladesh is a developing country. The majority of the population lives in rural areas do not use modern health care facilities because of inadequate road transport, lack of allopathic doctors and absence of hospitals or clinics, non-affordability to buy modern medicines, and age-old dependency on folk medicinal practitioners, who are locally known as Kavirajes. The Kavirajes depend primarily on medicinal plants for treatment of various ailments. The knowledge attained by Kavirajes are usually kept within the family and passed from generation to generation. Over the centuries, the Kavirajes thus have attained considerable expertise on the use of medicinal plants for treatment of a diverse variety of ailments. Bangladesh has over 86, 000 villages and each village has one or more practicing Kavirajes.

Kavirajes also practice in the urban areas including the capital city of Dhaka, where they have a substantial clientele too. We had been conducting ethno-medicinal surveys among the Kavirajes of various areas and tribes of Bangladesh for the last year. Any comprehensive knowledge of folk medicinal plants are noticeably absent in Bangladesh. Yet such knowledge is important, because Bangladesh has over 5,000 floral species – a considerable number of which are used by the Kavirajes. Towards the fulfilment of this gap in our ethno-medicinal knowledge on use of local plants, surveys have been conducted in various villages and among various tribes. Previous studies indicated that the different Kavirajes of different villages in most cases do not use similar plants or combination of plants for treatment of any specific ailment (Rahmatullah *et al.,* 2009; Hossan *et al.,* 2009; Hanif *et al.,* 2009; Nawaz *et al.,* 2009; Rahmatullah *et al.,* 2010; Mollik *et al.,* 2010; Rahmatullah *et al.,* 2010).

Since modern medicine has been found lacking in a number of aspects like side-effects, development of resistance and high prices, the empirical knowledge of the Kavirajes can go a long way towards development of newer and more efficacious drugs. About 64% of the total global population reportedly remains dependent on traditional medicine and medicinal plants for provision of their health-care needs (Cotton, C.M., 1996). Considering the overall situation the research was conducted to investigate the medicinal plant and their using in the area mentioned the title.

Materials and Methods

Tangail Sadar is an Upazila of Tangail District in the Division of Dhaka, Bangladesh. Tangail Sadar is located at 24°15′00″N longitude and 89°55′00″E longitude. It has 69783 units of house hold and total area 334.26 km². As of the 2012 Bangladesh census, Tangail Sadar has a population of 521104 of which males constitute 51.05% of the population, and females 48.95%. Tangail Sadar has an average literacy rate of 36.4% (7+ years), and the national average of 32.4%. Tangail Sadar has 16 Unions/Wards, 353 Mauzas/Mahallas, and 277

villages. The villages surveyed namely Binnafore, Dannya, Mogra, Gala, Santosh, Shakrail, Katuli, Porabari, **Baghil, Gharinda, Silimpur, Hugra, Belta**, Akurtakur Para and Kakua. Agriculture (35.74%) is the main occupation of these villagers.

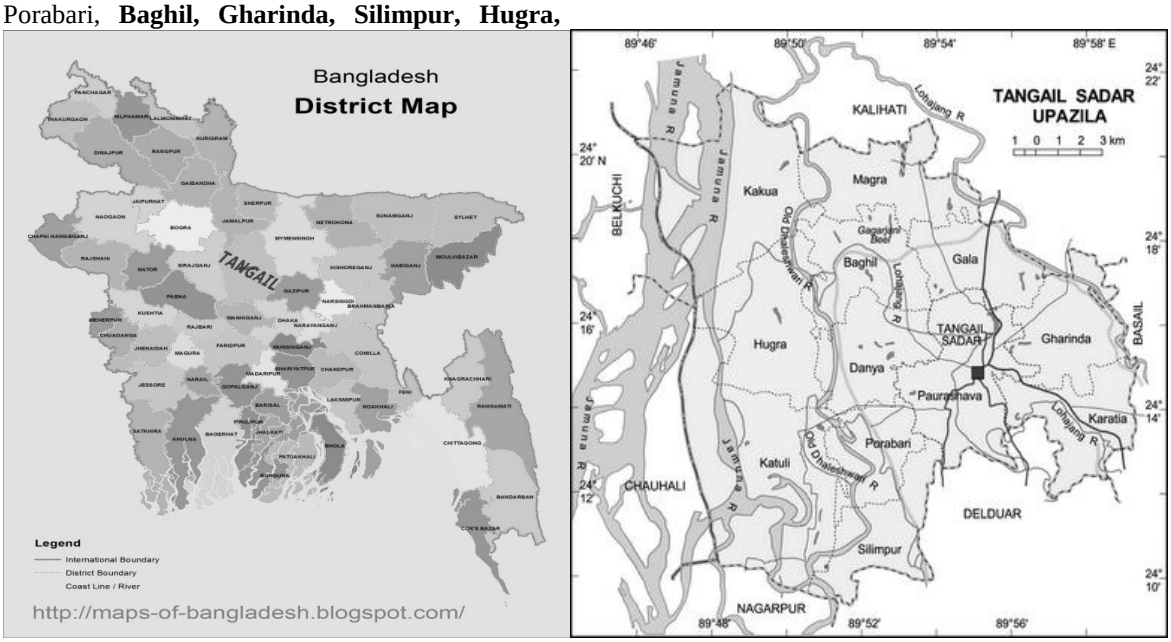

Figure 1: Location Map of Survey area, Tangail Sadar, Tangail District, Bangladesh.

During the survey period, several field trips were undertaken to the study area and 15 famous traditional practitioners (Table 1) who regularly used local plant resources for their practices were selected.

Table 1: Names and addresses of Kavirajes

Name of Kaviraj	Address	Name of Kaviraj	Address
Md. Ahsanullah	Binnafore, Tangail	Md. Rahman Miah	Belta, Tangail
Ramprassad Saha	Dannya, Tangail	Khabir Uddin	Gharinda, Tangail
Md. Tamijuddin	Mogra, Tangail	Md. Ajmal Khan	Hugra, Tangail
Sultan Miah	Gala, Tangail	Md. Siraj Ahmed	Katuli, Tangail
Md. Mahmud	Kakua, Tangail	Md. Atta Talukder	Porabari, Tangail
Md. Dudu Miah	Akurtakur Para, Tangail	Md. Mumtaz Uddin	Baghil, Tangail
Md. Abdul Miah	Santosh, Tangail	Md. Amir Khan	Silimpur, Tangail
Md. Abul Mia	Shakrail, Tangail		

The Kavirajes were informed about the purpose of the survey and consent taken for dissemination of the obtained data both nationally and internationally. Surveys were conducted with the help of a semi-structured questionnaire and the guided field walks method as described by Martin (1995) and Maundu (1995). In this method, one or more Kavirajes took the interviewers on guided field-walks through areas from where they collected their medicinal plants. Plants were pointed out to the interviewers along with provision of local names and description of their uses. Plant specimens as pointed out by the Kavirajes were collected on the spot, dried, and brought to Bangladesh National Herbarium for identification.

Results

The recorded Information on 55 Plants Species, used commonly as remedies for various diseases are listed with their Family, Botanical name, Local name, Plant part used and their therapeutic use in Tangail Sadar Upazila (Table 2).

Table 2: Local status of Medicinal plants (wild) in Tangail Sadar

SL	Botanical Name	Local name	Family	Part used	Local uses
1	*Abelmoschus moschatus (L.) Medic.*	Kalokasturi	Malvaceae	Seed, Bark	DTD, STD
2	*Abroma augusta L.*	Ulatkambal	Sterculiaceae	Root, Bark	ND, DTD
3	*Abutilon indicum (L.) Sw.*	Potari	Malvaceae	Root, Leaves	STD
4	*Acacia farnesiana (L.) Willd.*	Guyababla, Belati Babul	Mimosaceae	Bark, Leaves	STD, RP, DTD
5	*Acalypha indica L.*	Muktajhuri	Euphorbiacee	Leaves, Plants	RP, AP
6	*Adenanthera pavoninal.*	Rakta Kambal	Mimosaceae	Seeds, Roots	MSD
7	*Adhatoda zeylanica medic.*	Basak	Acanthaceae	Root, Bark, Leaves	STD, RP
8	*Adiantum philippense L.*	Goyalelata, Kalijhant	Adiantaceae	Whole plant	DTD, Rf
9	*Aganosma dichotoma k. Schum.*	Malati, Gandhomalati	Apocynaceae	Leaves, Flower	SD, ED
10	*Albizzia lebbeck (L.) Benth.*	Sirish, KalaKoroi	Mimosaceae	Bark, Seed, Leaves	DP, ND, SD
11	*Alpinia nigra (gaertn.) Burtt.*	Jangli Ada, Tara	Zingiberaceae	Roots	ND, Rf
12	*Amaranthus spinosus L.*	Katanotey, Katadenga	Amaranthaceae	Roots	GD, DTD, BP
13	*Andrographis paniculata (Burm. F.) Wall. Ex Ness.*	Kalomegh, Kalamegh	Acanthacea	Whole plant	HD, DTD, Db
14	*Asclepias curassavica L.*	Kakturi, Ban Kapas	Asclepiadaceae	Root, Leaves	AC, DTD, STD
15	*Asparagus racemosus L.*	Satamuli	Liliaceae	Roots	ND, HD, RD
16	*Averrhoa bilimbi L.*	Bilimbi, Belembu	Averrhoaceae	Fruits	HD, Vitc-d
17	*Bacopa monniera (L.) Pennel.*	Dhupkamini	Scrophulariaceae	Leaves	RH, ND, RP
18	*Barlaria strigosa willd.*	Dasi	Acanthaceae	Roots, Leaves	DP, SD, AS
19	*Boesenbergia longiflora kuntze.*	Pati pata	Zingiberaceae	Roots	ND, RP
20	*Brassica nigra (L.) Koch.*	Kalo Sarisha	Brassicaceae	Seeds	ND, Rf
21	*Capsicum frutescence L.*	Lanka-marich	Solanaceae	Leaves, Fruits	PB, DTD, ED
22	*Cayratia trifolia (L.) Domin.*	Amal-lata	Vitaceae	Whole plant	PB, DTD
23	*Dalbergia volubilis roxb.*	Ankilata, Barasirkath	Fabaceae	Roots, Leaves	STD, PB
24	*Datura metel L.*	Dhutra, Dhutura	Solanaceae	Leaves, Seeds	AB, AF, RP, DTD
25	*Derris indica (lamk.) Bennet.*	Karanija,Kanji	Fabaceae	Roots, Leaves	PB, Rf, SD
26	*Desmodium gangeticum (L.) Dc.*	Salpani, Chalani	Fabaceae	Roots	DTD, HD, CD
27	*Dimocarpus longan lamk.*	Ashphal	Sapindaceae	Fruits, Seeds	RH, ND
28	*Drynaria quercifolia (l.) J. Sm.*	Pankhiraj, Pankha	Drynariaceae	Whole plant	ND, DTD, SD, RD
29	*Embelia ribes Burm. F.*	Biranga	Myrsinaceae	Fruits, Roots	SD, DTD, PB
30	*Enhydra fluctuans lour.*	Helencha	Asteraceae	Whole plant	RP, ND, SD, HD
31	*Entada pursaetha dc.*	Gilagach, Gilla	Mimosaceae	Seeds	PB
32	*Euphorbia tirucalli L.*	Lanka Sij	Euphorbiaceae	Whole plant	SD, RD, ND
33	*Ficus religiosa L.*	Aswatha, Pipal	Moraceae	Fruits, Seeds	RP,HD,RD
34	*Flacourtia indica (Burm. f.) Merr.*	Boichi, Benchi	Flacourtiaceae	Bark, Roots	HD, SD, Rf
35	*Gloriosa superba L.*	Ulatchandal	Liliaceae	Roots, Leaves	SD, AP
36	*Glycosmis pentaphylla (retz.) A. Dc.*	Datmajan, Matmati	Rutaceae	Leaves	HD, Rf
37	*Hedyotis corymbosa (l.) Link.*	Khetpapra	Rubiaceae	Whole plant	HD, Rf
38	*Helianthus annus L.*	Surjamukhi	Asteraceae	Seeds, Roots, Leaves	SD, CD, DTD
39	*Ipomoea quamocli*	Tarulata, Kamalata	Convolvulaceae	Whole plant	PB, AC
40	*Ixora arborea roxb.*	Shet Rangan	Rubiaceae	Root, Bark, Flower	GD, An
41	*Jasminum scandens vahl.*	Muichchaludi	Oleaceae	Roots	SD, ED
42	*Jatropha curcas L.*	Ban Verenda, Chanda	Euphorbiaceae	Seed, Sap	RH, DTD, PB
43	*Kalanchoe pinnata (lam.) Pers.*	Patharkuchi	Crassulaceae	Leaves	RP, DTD, HD
44	*Lawsonia inermis L.*	Mehedi, Mendi	Lythrac	Leaves, Bark	BP, RH, SD, ND
45	*Leonurus sibiricus L.*	Guma, Juma	Lamiaceae	Leaves	GD, PB
46	*Coccinia grandis (L.)*	Telakochu	Cucurbitaceae	Whole plant	GD, ND, SD, Db
47	*Nodiflora (l.) Greene phyla.*	Koi okra	Verbenaceae	Leaves	Rf
48	*Terminalia arjuna.*	Arjun	Combretaceae	Bark. Seed, Fruit	CD, HD, STD, DTD
49	*Terminalia belerica*	Bohera	Combretaceae	Bark. Seed, Fruit	CD, HD, STD, DTD.
50	*Terminalia chebula*	Horitok	Combretaceae	Bark. Seed, Fruit	CD, HD, DTD
51	Clerodendrum viscosum Vent.	Vaidir gach	Lamiaceae	Leaves	RP
52	*Aloe barbadensis* Mill.	Ghritakumari,	Liliaceae	Whole plant	DT, BP
53	*Alstonia scholaris* (L.)	Chaitan	Apocynaceae	Bark	GD
54	*Mangifera indica*	Aum	Anacardiaceae	Seed	Db
55	*Syzygium cumini* (L.)	Jam	Myrtaceae	Fruit, Bark, Seed	Db, SD, DTD

ND = Neurological disorder; CD = Cardiovascular disorder; DTD = Digestive Track disorder; HD = Hepatic disorder; RD = Renal disorder; AA = Anti Allergies; MSD = Muscular/Skeleton disorder; ED = Eye Problem; GD = Gynaecological disorder; RP = Respiratory Problems; AC =Anti cancer; AF = Antifungal; An = Anaemia; AP = Anti-parasite; Db = Diabetes; SD = Skin disorder; PP = Pain problem; BP = Burn problem; STD = Sexual transmitted diseases; RH = Reproductive health; Vitc-d = Vit-c deficiency; Rf = Rheumatic fever

Discussion and Recommendation

The components of folk medicine as a healing modality, has long been ignored by medical practitioners for various reasons. The first and foremost reason is that many medicinal plants used by folk medicinal practitioners remain to be investigated through modern scientific methods. The relevant photochemical need to be identified and proper evaluations need to be made on their mode of action and possible toxicities. The second reason is an inherent distrust on supposedly 'ancient' modes of treatment, which many modern medical practitioners believe to be a combination of superstitious beliefs and placebo effects. On the other hand, more and more modern research is validating the use of medicinal plants, which are used by traditional medicinal practitioners throughout the world for treatment of various ailments. Syzygium cumini (L.) Skeels, used by the Kavirajes for treatment of diabetes is one example of a medicinal plant obtained in the present survey where scientific research is validating its use by the Kavirajes. Hypoglycemic effect has been reported of defatted seeds and water soluble fiber from the seeds of this plant in alloxan-induced diabetic rats (Pandey and Khan, 2002). The ethanolic extract of seeds of this plant also reportedly increased body weight and decreased blood sugar level in alloxan-induced diabetic albino rats. The extract also demonstrated improvement in the histopathology of pancreatic islets (Singh and Gupta, 2007). Anti-diabetic, therapeutic and anti-oxidative effects have also been reported for an ethereal fraction of ethanolic extract of seed of the plant in streptozotocin induced diabetes in male rats (Mandal *et al*., 2008).

The potential value of the knowledge of traditional folk medicinal practitioners and their use of medicinal plants should not be underestimated. A recent review has shown that approximately 25% of modern medications have been plant derived, while 75% of new drugs against infectious diseases that have arrived between 1981 and 2002 originated from natural sources (Bedoya *et al*., 2009). Several bioactive phytochemical from plant sources like curcumin, resveratrol, baicalein, boswellic acid, betulinic acid, ursolic acid and oleanolic acid are now studied as possible drugs for the future against inflammatory diseases (Gautam and Jachak, 2009). Anti-cancer agents from plant sources currently being used or undergoing clinical trials include vinblastine, vincristine, nevelbine, etoposide, teniposide, taxol, taxotere, topotecan and irinotecan (Wang, 1998). Taken together, all available reports indicate that knowledge about the traditional use of plants must not be ignored. The folk medicinal practitioners of Bangladesh have been practicing and using medicinal plants in their practices from time immemorial. As such, cumulatively, they possess a vast store-house of medicinal plant knowledge. The present survey thus presents an enormous potential for further scientific studies to be carried out on the plants reported.

It is expected that these studies can lead to discovery of some compounds, which in turn can be a tool for development of better drugs. Moreover, if scientific studies validate the use of medicinal plants by the Kavirajes, that would present further impetus towards conservation of these plants, which are rapidly becoming endangered in their wild habitat.

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