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## Two female folk medicinal practitioners of Bangladesh and evaluation of their phytotherapeutic practices

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### Abstract

Although male folk medicinal practitioners (FMPs) are common, female FMPs are a comparative rarity in Bangladesh. The objective of this survey was to document the therapeutic uses of plants by two female FMPs in Pabna and Pirojpur districts of Bangladesh. The numbers of plants used by the FMPs were small. The Pabna FMP used a total of four plants, which were used for treatment of tonsillitis, dysentery, arthritis, and pain. The Pirojpur FMP used just one plant, which she used for treatment of cataract and night blindness. Arthritis cannot be cured with allopathic medicines; cataract needs costly surgery. Thus the plants may prove to be beneficial in the treatment of arthritis and possible removal of cataract without surgery.

**Keywords:** folk medicine, medicinal plants, pabna, pirojpur, Bangladesh

### Introduction

Folk medicine is a form of traditional medicine, which has been practiced for possibly thousands of years throughout various regions and countries of the world. There are no fixed elements in folk medicine; for instance, the monotheistic and polytheistic regions of West Asia in their ancient texts mention simultaneous use of medicinal plants and scriptures for healing [1]. Traditional folk medicine has existed in Turkey for thousands of years, being practiced by shamans and kams [2]. The Indian sub-continent countries have a rich tradition of folk medicine, some of which have become formalized systems of medicine like Ayurveda and Unani, while others still exist in their original form within the various tribes and rural mainstream population [3]. Bangladesh is also no exception; folk medicinal practitioners (FMPs) known locally as Kavirajes or Vaidyas can be found in every region of the country, including both mainstream and tribal populations.

Although folk medicine has been dismissed by some as quackery, in reality FMPs when taken in their totality have quite good and diverse knowledge on the therapeutic properties of plants, plants being the main mode for treatment of diseases. This knowledge, following appropriate documentation can not only provide valuable information on the medicinal plant resources of the country but also can be a tool for the scientist to work on drug discovery from these plants. We have been documenting folk and tribal medicinal practices of Bangladesh for a number of years [4-24]. Among the FMPs, female FMPs are comparatively a rarity. The objective of this study was to document the therapeutic practices of two female FMPs in Pabna and Pirojpur districts.

### Materials and Methods

Information was collected from Pervin Begum, Balarampur village, Pabna district, female, age 58 years and Nurjahan Begum, Betamor village, Pirojpur district, female, age unknown, Bangladesh. Interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method as described by Martin [25] and Maundu [26]. In this method, the FMP(s) took the interviewers to locations from where she collected her medicinal plants, pointed out the plants, and described their uses along with providing the local names. Plant specimens were collected, pressed and dried in the field and later identified at the Bangladesh National Herbarium in Dhaka. Informed consent as to dissemination of any information provided by the FMP including mentioning the FMP's name, age and gender (the second FMP

did not give her age) was obtained followed by interviews conducted in Bengali. Plant specimens were deposited with the Medicinal Plant Collection Wing of the University of Development Alternative.

### Results and Discussion

The numbers of plants used by the FMPs were small. The Pabna FMP used a total of four plants (plant numbers 1, 2, 4 and 5 in Table 1), which were used for treatment of tonsillitis, dysentery, arthritis, and pain. The Pirojpur FMP used just one plant (Plant 3 in Table 1), which she used for treatment of cataract and night blindness. The results are shown in Table 1. In only one case two plants were used in combination. This was for the treatment of tonsillitis by the Pabna FMP, who used a combination of roots of *Amaranthus spinosus* and fruits of *Piper nigrum*.

The use of roots of *Butea monosperma* to treat cataract and night blindness appears interesting. In allopathic medicine, cataract can only be removed by surgery, which is costly and can also lead to infections and permanent blindness following surgery. Thus any non-invasive and affordable procedure to get rid of cataract can be highly beneficial to human beings suffering from this eye problem. We have previously reported on the use of a combination of *Blumea lacera* and *Centella*

*asiatica* by FMPs to remove cataract [27]. The causative factor of night blindness is considered to be deficiency of vitamin A [28]. Obviously a drop of root juice applied to the eyes as done by the FMP will not be able to possibly supply enough vitamin A (even if roots of *Butea monosperma* contain vitamin A) to cure night blindness. On the other hand, there can be other forms of impaired night vision, and it is possible that the root juice may be able to cure one or more forms of such impaired night vision. Congenital stationary night blindness (CSNB) can be caused by glaucoma (increased pressure within the eyeball) among other factors [29]. If CSNB can be cured in this very affordable and available way, it would mark a significant improvement in the treatment of this night vision problem.

Roots of *Jatropha curcas* have been reported to be used for treatment of dysentery [30]; the Pabna FMP used stems of the plant. Interestingly, white-flowered plant stem was used to treat white dysentery (stool containing mucus) and red-flowered plant stem was used to treat red dysentery (blood with stool). This plant color selection according to disease symptom color has been seen previously. For instance, flowers of red-flowered variety of *Hibiscus rosa-sinensis* reportedly were used to treat excessive bleeding by the Tudu sub-clan of the Santal tribe [31].

**Table 1:** Medicinal plants and formulations of the two female FMPs from Pabna and Pirojpur districts, Bangladesh

Serial Number	Scientific Name	Family Name	Local Name	Parts used	Ailments treated
1	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Kata khura	Root	Tonsillitis. A root from one plant is made into a paste with a fruit of <i>Piper nigrum</i> . A pinch of the paste is suspended in a tablespoonful of water and the spoon containing the water with paste is held over a fire and slightly warmed. The warm water containing the paste is taken orally and this is done thrice daily.
2	<i>Jatropha curcas</i> L.	Euphorbiaceae	Jamal kotha (white-flowered)	Stem	White dysentery (presence of mucus with stool). A stem is broken and the ensuing sap is put into a batasha (a type of rural sweet) and taken in the morning on an empty stomach. If it is red dysentery (presence of blood with stool), the same thing is done with stem of the red-flowered plant.
3	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Polash	Root	Cataract, night blindness. One drop of root juice is applied to each eye followed by closing the eyes for a minute.
4	<i>Piper nigrum</i> L.	Piperaceae	Gol morich	Fruit	See <i>Amaranthus spinosus</i> .
5	<i>Datura metel</i> L.	Solanaceae	Kalo dhutura	Fruit	Arthritis, pain. Five to seven fruits are taken and roasted over a fire. The skins of the fruits are then peeled off and the fruits are mashed in 250g mustard oil. The mixture is then dried under the sun till it becomes an oily paste, which is applied topically to painful areas.

The analgesic activity of *Datura metel* seeds have been reported [32]; however the FMP used fruits. The therapeutic knowledge or experience of the FMP is also evident in this case, for the FMP used mustard oil in conjunction with fruits in topical application. Oil can be potential penetration enhancers for transdermal drug delivery [33]. Thus any analgesic component present in fruit can be more easily absorbed through the skin in presence of oil, more so, if the component is lipid soluble.

Although the number of plants and the diseases treated by the two FMPs were small, available scientific literature suggests that the FMPs were not indulging in quackery but had good experience about the therapeutic properties of the plants that they used. Overall, the study points to the importance of documenting the phytotherapeutic knowledge of FMPs towards possible discovery of new drugs.

### Author's contributions

The first two authors (ZBH and NK) did the survey, KJ wrote the first draft of the manuscript and collected the appropriate

references, plant identities and manuscript were checked by MS, and the whole study was conducted under the supervision of MR who revised the first draft and completed the manuscript.

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