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## Phytotherapeutic formulations of three small time folk herbalists of Tangail district, Bangladesh

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### Abstract

Folk herbalists (FHs) can be defined as part-time or small time folk medicinal practitioners (FMPs), whose practice involves one or two formulations and the same number of diseases. Although in theory, their practices may not be worth documenting, yet in reality their formulations often contain novel uses of plants, which previously had not been reported. The objective of this study was to document the phytotherapeutic practices of three FHs of Tangail district, Bangladesh. It was observed that the three FHs between themselves used only five plants distributed into five families for treatment of weakness, heart disorders, gastrointestinal disorders, fever, and acne. The flower of one plant (which was not indigenous but brought from Saudi Arabia) was used to expedite delivery. The use of three other plants was also quite novel. The study not only uncovers some new therapeutic uses of Bangladesh plants, but also points out that traditional phytotherapy may also involve plants from other regions outside Bangladesh.

**Keywords:** folk herbalist, phytotherapy, tangail, Bangladesh

### Introduction

Folk herbalists (FHs) in Bangladesh are part-time or occasional folk medicinal practitioners (FMPs), who have taken folk medicine practice more as a sort of hobby or because they know of a few effective formulations obtained from family members or friends. In most cases their repertoire of plant therapeutic knowledge runs to less than five plants with the same number of diseases treated. From the view point of their small scale traditional medicinal practices, it is tempting not to take FHs into account. Yet in our various ethno medicinal surveys done so far [1-33], we have repeatedly come across FHs who have demonstrated previously unreported uses of plants and diseases treated. Thus it is important to document the practices of FHs along with FMPs for such documentation has a good possibility of throwing new light on ancient phytotherapeutic purposes, because the knowledge of FHs usually have been transmitted orally for years from generation to generation. In this study, we document the phytotherapeutic practices of three FHs practicing in Tangail District, Bangladesh.

### Materials and Methods

The information was obtained from three FHs practicing in Tangail district, Bangladesh. The FHs were (I) Md. Shukur Ali, male, age 67 years, Korotia, Purbo Para, (II) Nikhil Sarkar, male, age 42 years, Delduar village, and (III) Babul Miah, male, age 40 years, Pach Talakin, Delduar village. Prior Informed Consent was obtained from the FHs. The first FH mentioned that his specialty is hirudotherapy, but he also practices phytotherapy on the side, his phytotherapeutic knowledge being limited to only one plant, *Selaginella lepidophylla*, which plant's flowers were brought from Saudi Arabia. The second FH gave the names of three plants, namely *Terminalia arjuna*, *Scoparia dulcis*, and *Swertia chirayita*. The third FH gave the name of only one plant, *Bombax ceiba*. Specimens of all plants were collected and identified by a competent botanist. Further investigation showed that the dried flowers of *Selaginella lepidophylla* are commonly found in Bangladesh, being imported from Saudi Arabia by herbal shops or being brought by persons after performing the Hajj. Consent was obtained from the FHs to disseminate the provided information in any way that the authors desired.

### Results and Discussion

The three FHs between themselves used only five plants distributed into five families for

treatment of weakness, heart disorders, gastrointestinal disorders, fever, and acne. The flower of one plant (which was not indigenous but brought from Saudi Arabia) was used to expedite delivery. The results are shown in Table 1. It has been reviewed that in Indonesia there are more than 200 *Selaginella* species, and a number of them have traditional uses to heal wounds, bloody stools, internal hemorrhage, menstrual and uterine disorders [34]. In India, *Selaginella* species are used amongst other purposes, to expedite childbirth [35]. Thus although the FH claimed to use the Saudi Arabian plant's flowers, his use of the plant had Indian equivalent. Nevertheless, to our knowledge, this may be the first report on the use of this plant's flowers in folk medicine of Bangladesh.

*Terminalia arjuna*'s bark was used by another FH for heart disorders. The bark of this plant is well established in Ayurvedic literature for possibly hundreds and thousands of years as being beneficial for the heart. It has been mentioned that the plant was introduced into Ayurvedic therapy in 7<sup>th</sup> century AD [36]. Even a cursory glance at the scientific literature of the last 2 years show that the aqueous extract of the bark of the plant has cardioprotective activity against doxorubicin toxicity [37]; a hydroalcoholic formulation of the bark (Arjunarishta) has anti-hyperglycemic and anti-hyperlipidemic effects in high fat-fed Wistar rats [38]; aqueous bark extract protects against cardiac and hepatic injuries in

Wistar rats [39]; and cardioprotective effects have been reported of the plant in experimental diabetes [40]. Thus it can be safely said that the use of the bark of this plant in cardiovascular disorders is supported by both traditional uses spanning over a thousand years as well as modern pharmacological studies.

In traditional system of medicine (Unani and others), *Swertia chirayita* is used for treatment of fever, loss of appetite, digestive disorders, diabetes, and skin diseases. Some of the plant's phyto-constituents like amaroswerin is gastroprotective, and several alkaloids and flavonoids of the plant are anti-pyretic [41, 42]. Traditional uses of *Scoparia dulcis* in India include being used against stomach ailments and urinary tract infections [43]. The use of *Bombax ceiba* roots to treat constipation appears to be a previously unreported use of roots of this plant for this particular therapeutic purpose.

A question that is frequently being asked for FMPs and FHs is what are the source(s) of their phytotherapeutic knowledge? Without a reliable source, such knowledge becomes irrelevant and even dangerous for many plants have toxic properties. It is surprising to notice, like in the present study, that the phytotherapeutic practices of FMPs and FHs are finding scientific validation in recent studies. What this study suggests is that more documentation of traditional knowledge needs to be carried out towards discovering new drugs.

**Table 1:** Plants and formulations of the FHs of Tangail District Bangladesh

S. No.	Scientific Name	Family Name	Local Name	Parts used	Ailments treated
1	<i>Bombax ceiba</i> L.	Bombacaceae	Simul	Young root	Weakness, constipation. Young roots are dried in the sun and then cut into small pieces, which are then taken orally by chewing.
2	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.	Combretaceae	Arjun	Bark	Heart disorders. 250g of bark is powdered and two teaspoons of the powder is soaked in about 250 ml of water overnight. The water is taken orally the following morning on an empty stomach. The process is continued for 15-20 consecutive days.
3	<i>Swertia chirayita</i> (Roxb. ex Fleming) H. Karst.	Gentianaceae	Chirata	Leaf	Constipation, gastric disturbances, dysentery, abdominal pain, fever, acne. Leaves are dried and then soaked in water overnight. The water is taken orally on an empty stomach the following morning.
4	<i>Scoparia dulcis</i> L.	Scrophulariaceae	Misri dana gach	Root	Gastric complication, whitish discharge in urine of females. Two roots are washed and taken orally by chewing in the morning and the same done in the evening for eight consecutive days.
5	<i>Selaginella lepidophylla</i> (Hook. & Grev.) Spring*	Selaginellaceae	Mariam	Flower	To expedite delivery. Flowers are soaked in water overnight followed by orally administering the water to the expectant mother during labor pains.

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