ORIGINAL ARTICLE

Traditional phytotherapy of folk and tribal medicinal practitioners in Bangladesh for treatment of elephantiasis


Faculty of Life Sciences, University of Development Alternative, Dhanmondi, Dhaka-1205, Bangladesh


ABSTRACT

Elephantiasis is a disease prevalent in particularly the northern districts of Bangladesh. The sickness is characterized by thickening of the skin and underlying tissues, which occurs especially in the legs and male genitals. The disease is caused by thread-like parasitic worms, which are transmitted by mosquitoes. Elephantiasis is of two types – that caused by parasitic infection is known as filariasis, while the other type is known as podoconiosis or non-filarial elephantiasis. Folk and tribal medicinal practitioners of the country use medicinal plants for treatment of both forms of elephantiasis. An ethnmedicinal survey was carried out among folk and tribal medicinal practitioners with the objective of documenting the medicinal plants used by the practitioners for treatment of this disease. A total of 15 plants distributed into 13 families were obtained from the various folk medicinal and tribal medicinal practitioners. The practitioners claimed that they use these plants for successful treatment of the disease. Since the rural population of Bangladesh is primarily affected with elephantiasis, it is important that further scientific studies be conducted with these plants, for scientific validation can provide an alternative, cheap and readily available source for treatment of this disease, rather than costly and time-consuming visits to modern health-care doctors and clinics, which are mostly absent in rural Bangladesh.

Key words: Medicinal plants, elephantiasis, filariasis, Bangladesh

Introduction

Elephantiasis is a disease widely prevalent in Bangladesh, particularly in the northern regions of the country. The disease causes thickening of the skin and underlying tissues, which occurs most often in the legs and male genitals. Thickening of the male genitals occur more in the scrotum, which can swell to an enormous size. The disease is generally known in Bangladesh as ‘godh’. There are two types of elephantiasis. One of the two types, known as filariasis, is caused by thread-like parasitic worms such as Wuchereria bancrofti, Brugia malayi and Brugia timori, all of which parasites being transmitted by mosquitoes. The disease can also occur in the absence of parasitic infections, when it is known as podoconiosis or non-filarial elephantiasis. Besides Bangladesh, high prevalences of elephantiasis have been reported for African countries like Burundi, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda.

Filariasis caused by Wuchereria bancrofti, also known as Bancroftian elephantiasis and lymphatic filariasis have been reported to be endemic in twelve northern districts of Bangladesh. In a study conducted in Nilphamari district of Bangladesh, an average of 1.34% of the people was diagnosed with Bancroftian elephantiasis (Saha and Mohanta, 2011). City population is not exempt from this disease, with the disease being reported to be present even in the capital city of Bangladesh, namely Dhaka (Ahmed et al., 1986). It appears that increasing organic pollution and drainage obstruction may have lead to increases in filariasis patients within the country (Birley, 1993).

The rural and tribal population of Bangladesh mostly lacks access to modern clinics and allopathic doctors. As a result, they rely mostly on folk medicinal and tribal medicinal practitioners for treatment of various ailments, which these practitioners usually treat with various medicinal plants. Such treatments have gone on for centuries and offer the patients an alternative route of treatment with both practitioners and materials, which are cheap and readily available. Scientific validation of these medicinal plant treatments can go a long way in reducing medical costs, which are often burdensome for the rural poor. To spur scientific interest in Bangladeshi
medicinal plants, we had been documenting the medicinal plants used by the folk and tribal medicinal practitioners for the last few years (Nawaz et al., 2009; Rahmatullah et al., 2009a-c; Chowdhury et al., 2010; Hasan et al., 2010; Hossan et al., 2010; Mollik et al., 2010a,b; Rahmatullah et al., 2010a-g; Akber et al., 2011; Biswas et al., 2011a-c; Haque et al., 2011; Islam et al., 2011; Jahan et al., 2011; Rahmatullah et al., 2011a,b; Sarker et al., 2011; Shaheen et al., 2011; Das et al., 2012; Hasan et al., 2012; Hossan et al., 2012; Khan et al., 2012; Rahmatullah et al., 2012a-d; Sarker et al., 2012). The objective of this study was to document medicinal plants used by folk and tribal medicinal practitioners for treatment of elephantiasis.

Materials and Methods

The present survey was carried out among 245 folk and tribal medicinal practitioners throughout Bangladesh from 2009 till 2012. Not all practitioners knew or treated elephantiasis; among the 245 practitioners interviewed, only 15 practitioners treated elephantiasis. Repeat visits were made to these 15 practitioners with the interviewers being accompanied by an allopathic doctor, who determined from seeing the patients that the disease treated was indeed elephantiasis. Actual interviews of these practitioners were carried out with the help of a semi-structured questionnaire and the guided field-walk method of Martin (1995) and Maundu (1995). In this method, the practitioners took the interviewers on guided field-walks through areas from where they collected their medicinal plants, pointed out the plants, and described their uses. Plant specimens were photographed, collected, dried and brought back for identification at the Bangladesh National Herbarium, Dhaka. Voucher specimens were deposited at the Medicinal Plant Collection Wing of the University of Development Alternative. It is to be noted that informed consent was initially obtained from each practitioner interviewed to disseminate the obtained information both nationally and internationally.

Results and Discussion

The fifteen practitioners were observed to treat elephantiasis with fifteen different plant species. These plant species, as shown in Table 1, belonged to thirteen different families. It is to be noted that the various plants used by the practitioners for treatment of elephantiasis differed totally from one another. In fact, any consensus between the practitioners as to the plant species used for treatment was totally absent. Of the 15 plant species obtained, 13 were from folk medicinal practitioners, i.e. practitioners practicing among the mainstream Bengali-speaking population, and two plant species were obtained from a Santa and a Rakhain tribal practitioner, respectively (as denoted in parentheses in Table 1). It is also interesting that the Fabaceae and the Solanaceae family contributed two plants each, suggesting that these two family plants may be more interesting for further scientific studies towards discovery of new drugs against elephantiasis.

Table 1: Medicinal plants used by folk and tribal medicinal practitioners of Bangladesh for treatment of elephantiasis.

<table>
<thead>
<tr>
<th>Botanical name</th>
<th>Family</th>
<th>Local name</th>
<th>Parts used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphophallus sylvaticus (Roxb.) Kunth syn. Amorphophallus zeylanicus Engl., Arum sylvaticum Roxb., Brachyspatha sylvatica (Roxb.) Schott, Brachyspatha zeylanica (Blume) Schott, Pythonium sylvaticum (Roxb.) Wight, Synantherias sylvatica Schott English: Pellitory</td>
<td>Araceae</td>
<td>Jongli hochu</td>
<td>Tuber</td>
</tr>
<tr>
<td>Bombax ceiba L., syn. Bombax malabaricum Candolle, Bombax malabaricum DC., Gossampinus</td>
<td>Bombacaceae</td>
<td>Shimul</td>
<td>Thorn</td>
</tr>
</tbody>
</table>
Of the various plants used by the practitioners for treatment of elephantiasis, only *Caesalpinia nuga* has been reported previously as an anti-filarial plant (Moon et al., 2010). The other plants, according to a search of the scientific and ethnomedicinal literature, have not been reported in the treatment of elephantiasis in any part of the world. However, this absence, by itself, raises scientific interest to conduct further studies on these plants with the objective of discovering lead compounds, which can serve as the basis for new anti-filarial drugs. There are, however, reports in the ethnomedicinal literature on the use of other plants for treatment of elephantiasis, which shows that treatment of elephantiasis with medicinal plants is not something unique to folk and tribal medicinal practitioners of Bangladesh, but is also carried out in other parts of the world. To cite a few instances, the ethnic people of Osmanabad region in Maharashtra, India use the plant, *Momordica dioica* Roxb. ex Willd. (Cucurbitaceae) for treatment of elephantiasis (Devarkar et al., 2011). Traditional phytotherapy among the Nath people of Assam, India includes use of root bark of the plant, *Calotropis gigantea* (L.) R. Br. (Asclepiadaceae) for similar treatment (Sikdar and Dutta, 2008). The ethnic people of Cameroon use stem bark of *Lannea microcarpa* Engl. & K. Krause (Anacardiaceae) for treatment of elephantiasis (Jiofack et al., 2010). Ethnic population in the Nandan Kanan sanctuary, Cuttack, Odisha, India use whole plants of *Sida acuta* Burm. f. (Malvaceae) for treatment of this disease (Kumar and Dash, 2012). These plants are present in Bangladesh but were not reported by the practitioners for treatment of elephantiasis. The study thus underscores the importance of documenting ethnomedicinal knowledge from as many diverse sources as possible to conduct scientific studies on different ethnomedicinal plants towards discovery of better drugs.
References


medicinal practitioners in two villages of Tangail district, Bangladesh. American Eurasian Journal of Sustainable Agriculture, 5: 350-357.