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Research Article

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Tribal medicinal practices in Bangladesh-a case study of a Tonchongya healer in Cox's Bazar district

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ABSTRACT

The Tonchongya tribal community is a small community and can be found in isolated pockets of Bandarban, Khagrachaaria, Rangamati, and Cox's Bazar districts of Bangladesh in the Chittagong Hill Tracts region. Since not much is known about this community, particularly regarding their tribal medicinal practices, the objective of this study was to document the medicinal practices of a Tonchongya healer practicing in Cox's Bazar town of Cox's Bazar district. The healer used medicinal plants for cure of diseases. A total of sixteen plants distributed into thirteen families were used by the healer. The various ailments that he treated included respiratory tract disorders, diabetes, edema, debility, cuts and wounds, infections, vomiting tendency, tumor, gastrointestinal disorders, piles, sexually transmitted diseases, pain, leucorrhea, fever, obesity, skin cancer, skin diseases, and intestinal and liver disorders. Since plants have always formed a rich source of efficacious drugs, the plants of the Tonchongya healer, particularly the plants used to treat diabetes, sexually transmitted diseases, tumors, and skin cancer merit further scientific research as to their disease curing potential leading to discovery of perhaps novel drugs.

Key words: Tonchongya, ethnomedicine, tribal practices, Chittagong Hill Tracts, Bangladesh

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INTRODUCTION

The advent of modern or allopathic medicine has seen enormous advancements in disease diagnosis and treatment. However, despite these advancements, allopathic medicine is still not able to cure a number of old diseases like diabetes as well as emerging diseases like sexually transmitted diseases where the vectors have become drug-resistant. Certain types of cancer cannot be cured while others can be cured if detected only in the early stages. This has necessitated discovery of new medicines, which can prove successful in treatment of the allopathic medicine non-treatable diseases.

In these types of cases, plants can play an important role. The vast diversity of plants along with their hundreds of thousands of phytochemical constituents makes plants an important source for obtaining newer medicines. In fact, many allopathic medicines have been and are still obtained from plants, medicines like quinine or artemisinin. Since indigenous or tribal societies have for thousands of years used plants as medicines, it is important to document the medicinal practices of these tribes to conduct appropriate studies on plants and discover their pharmacologically relevant uses.

Bangladesh is home to a number of traditional medicinal practices, the most ancient among them being probably folk and tribal medicinal practices. However, adequate documentation of the practices of folk and tribal medicinal practitioners has largely remained undocumented. Towards obtaining a broader view point of their practices, we had been conducting ethnomedicinal surveys among folk and tribal medicinal practitioners for a number of years [1-16]. The objective of the present study was to document the practices of a Tonchongya tribal medicinal practitioner, who practiced among the Tonchongya community residing in Cox's Bazar town in Cox's Bazar district of Bangladesh.

EXPERIMENTAL SECTION

The Tonchongya tribal community was located in Cox's Bazaar town in Cox's Bazar district, Bangladesh. The community had one tribal medicinal practitioner (TMP). Prior Informed Consent was first obtained from the TMP. The TMP was explained as to the nature of our visit and consent obtained to disseminate any information obtained both nationally and internationally. Interviews were conducted during 2014 in the Bengali language, which was spoken by both the TMP as well as the interviewers. Actual interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method of Martin [17] and Maundu [18]. In this method, the TMP took the interviewers on guided field-walks through areas from where he collected his medicinal plants, pointed out the plants, and described their uses. Plant specimens were photographed, collected, pressed and dried and brought to Dhaka, where they were identified at the Bangladesh National Herbarium.

RESULTS AND DISCUSSION

A total of sixteen plants distributed into thirteen families were used by the healer. The various ailments that he treated included respiratory tract disorders, diabetes, edema, debility, cuts and wounds, infections, vomiting tendency, tumor, gastrointestinal disorders, piles, sexually transmitted diseases, pain, leucorrhea, fever, obesity, skin cancer, skin diseases, and intestinal and liver disorders. The results are shown in Table 1. Interestingly, the TMP did not use poly-herbal preparations. In all cases, he used a single plant to treat diseases; however, the diseases treated may be diversified. In some cases, the TMP used different plant parts from the same plant to treat different diseases. For instance, roots of *Blumea lacera* were used to treated debility; on the other hand, leaves and stems of the same plant were used by the TMP to treat itches and infections.

Some of the plants used by the TMP deserve special mention and more attention from scientists. For instance, *Adhatoda vasica* was used by the TMP to treat coughs, asthma, diabetes, and bronchitis. In Ayurveda, the plant is used to treat coughs, asthma and bronchitis. Vasicine, a compound present in the plant has antitussive and bronchodilatory properties, which can be helpful in treating coughs, asthma, and bronchitis [19]. The antidiabetic effect of leaf and root extracts of the plant have also been described [20], making the plant a potential source for antidiabetic compounds.

Coccinia cordifolia was also used by the TMP to treat diabetes. The beneficial effect of supplementation of aqueous alcoholic extract of aerial parts of the plant in lowering blood glucose in newly detected diabetic patients has been reported [21]. Another plant used to treat diabetes by the TMP was *Desmodium laxiflorum.* To our knowledge, any antidiabetic reports are absent on this plant, and as such, the plant deserves further studies on its antidiabetic properties, more so because the other two plants used by the TMP against diabetes have been scientifically validated in their uses.

The leaves of *Eupatorium ayapana* were used by the TMP against tumor. Ethanolic and aqueous extracts of leaves of the plant reportedly showed antioxidant activity Ehrlich's ascites carcinoma bearing Swiss albino mice [22], which is one of the most essential properties of a chemotherapeutic drug. Thus this plant can prove useful in isolation of anticancer compounds. Furthermore, the use of this plant by the TMP to treat tumors appears to be scientifically validated.

Table 1. Medicinal plants and formulations of the Tonchongya tribal healer

Serial Number	Scientific Name	Family Name	Local Name	Parts used	Disease, Symptoms, Formulations, and Administration
1	*Adhatoda vasica* L.	Acanthaceae	Bashok	Leaf	Coughs, asthma, diabetes, bronchitis. One spoonful leaf juice is taken orally in the morning on an empty stomach for 3 weeks.
2	*Aerva lanata* (L.) Juss. ex Schult.	Amaranthaceae	Appon gach	Root	Edema. Two spoonfuls of root juice are taken orally in the morning on an empty stomach.
3	*Blumea lacera* DC.	Asteraceae	Kucchi pata, Kukur sima gach	Root, leaf, stem	Debility. One cup of juice obtained from washed and crushed roots is taken orally in the morning on an empty stomach. Itches, infections. Leaves and stems are soaked in water followed by taking a bath in the water.
4	*Eupatorium ayapana* Vent.	Asteraceae	Jarmani lota	Leaf	To stop bleeding from external cuts and wounds, infections, vomiting tendency, gastric trouble, tumor. One cup of leaf is crushed to obtain juice, which is taken 1-3 times daily orally on an empty stomach.
5	*Mikania cordata* (Burm.f.) B.L. Robinson	Asteraceae	Asha lota	Leaf	To stop bleeding from external cuts and wounds. Leaf juice is topically applied. Piles, gonorrhea, diarrhea, indigestion. One cup of leaf juice is taken orally daily in the morning on an empty stomach.
6	*Spilanthes acmella* Murr.	Asteraceae	Nakful gach	Flower	Toothache. Dried flowers are applied to painful areas.
7	*Coccinia cordifolia* (L.) Cogn.	Cucurbitaceae	Telakochu gach	Leaf	Diabetes. Leaves are cooked; alternately, juice obtained from crushed leaves is taken orally thrice daily on an empty stomach.
8	*Euphorbia hirta* L.	Euphorbiaceae	Dudhia gach	Leaf, stem	Leucorrhea, lung disorders, asthma. Half cup of juice obtained from crushed leaves and stems is taken orally daily in the morning on an empty stomach.
9	*Desmodium laxiflorum* DC.	Fabaceae	Sung pata	Leaf, stem	Diabetes. One cup of juice obtained from crushed leaves and stems is taken orally daily in the morning on an empty stomach.
10	*Cinnamomum tamala* (Buch.-Ham.) T. Nees & Eberm.	Lauraceae	Tejpata	Leaf	Mucus. Leaves are orally taken with tea.
11	*Drynaria quercifolia* (L.) J. Smith	Polypodiaceae	Porgacha, Porla gach	Leaf	Severe pain, diarrhea, fever. Two teaspoons of boiled leaves are taken orally in the morning on an empty stomach.
12	*Aegle marmelos* (L.) Correa	Rutaceae	Bael	Fruit	Stomach disorders, obesity, to soften stool, jaundice. One glass of fruit pulp is mixed with water and taken orally in the form of sherbet in the morning.
13	*Smilax roxburghiana* Wall.	Smilacaceae	Kurmia lota	Top part of stem with leaf	Sexual stimulant, skin cancer, skin infections. Top part of stem with leaves is soaked in water. The water is taken orally every night before sleep for 1 week.
14	*Clerodendrum viscosum* Vent.	Verbenaceae	Bhutma	Root	Gastric trouble, skin diseases, respiratory difficulties, mucus, diarrhea. One cup of juice obtained from crushed roots is taken orally daily in the morning on an empty stomach for 2 weeks.
15	*Cayratia trifolia* L.	Vitaceae	Berati	Leaf	Pain. One cup of juice obtained from crushed leaf is taken orally in the morning.
16	*Curcuma domestica* Val.	Zingiberaceae	Holud	Rhizome	Intestinal and liver disorders, digestive problems. Rhizome juice is taken orally. Itches. Rhizome juice is applied topically.

Antibiotics have been used to treat gonorrhea for several decades. However, according to the Centers for Disease Control and Prevention, US Department of Health and Human Services, the microorganism responsible for causing gonorrhea has developed resistance to nearly every drug used for treatment. From that view point, *Mikania cordata*, used by the TMP to treat gonorrhea, may provide a welcome breakthrough in treatment of drug-resistant gonorrhea. Other plants used by the TMP have been scientifically validated in their uses. To cite just one instance, the TMP used *Spilanthes acmella* to treat toothache. The plant is known in English as the toothache plant and its analgesic and anti-inflammatory properties have been reviewed [23]. These properties can make the plant an effective remedy against toothache. Overall, it may be concluded that the plants used by the TMP can prove useful in newer drug discoveries.

CONCLUSION

A number of the plants used by the Tonchongya tribal healer, especially plants used to treat diseases like tumor or diabetes or gonorrhea deserve scientific attention as to their relevant pharmacological properties and possible drug discovery. Scientific validation of their uses can provide the local population a readily available and affordable means for treatment.

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