

A Survey of Medicinal Plants Used by Folk Medicinal Practitioners in Daulatpur Upazila of Kushtia District, Bangladesh

A.H.M. Mahbubur Rahman*, Nishat Anjum Asha

Plant Taxonomy Laboratory, Department of Botany, Faculty of Biological Sciences,
University of Rajshahi, Rajshahi-6205, Bangladesh

*Corresponding author: drrahmanahmm@ru.ac.bd

Received January 06, 2021; Revised January 27, 2021; Accepted February 04, 2021

Abstract The present paper focused on medicinal plants used by traditional practitioners in Daulatpur Upazila of Kushtia district, Bangladesh from October 2018 to September 2019. The information about medicinal plants uses of traditional practitioners was collected through interview. A total of 45 medicinal plant species under 43 genera and 33 families have been documented which are used for the treatment of 48 categories diseases. These medicinal plants are used by the traditional practitioners for the treatment of various diseases like asthma, anemia, burning sensation, blood pressure, constipation, cough, diarrhea, diabetes, dysentery, eczema, fever, headache, heart disease, jaundice, leprosy, toothache, ulcer, skin disease, snake-bite, wound, and others. All these plants need to be evaluated through phyto and pharmaco-chemical investigations to discover their potentiality and may help in discovering effective drugs for human health care.

Keywords: medicinal plants, traditional uses, Daulatpur Upazila, Kushtia, Bangladesh

Cite This Article: A.H.M. Mahbubur Rahman, and Nishat Anjum Asha, "A Survey of Medicinal Plants Used by Folk Medicinal Practitioners in Daulatpur Upazila of Kushtia District, Bangladesh." *Research in Plant Sciences*, vol. 9, no. 1 (2021): 1-6. doi: 10.12691/plant-9-1-1.

1. Introduction

Medicinal plants serve as important therapeutic agents as well as valuable raw material for manufacturing numerous traditional and modern medicines. They offer alternative remedies with tremendous opportunities to generate income, employment and earn foreign currencies for developing countries [1]. Many traditional healing herbs and their parts have been shown to have medicinal value and can be used to prevent, alleviate or cure several human diseases. It is estimated that 70-80% of people worldwide rely chiefly on traditional, largely herbal medicine to meet their primary health-care needs [2,3]. It has further been observed that a number of modern pharmaceuticals have been derived from plants used by indigenous people [4,5]. Important modern drugs that have been derived from observations of traditional curing methods of indigenous people include aspirin, atropine, ephedrine [5,6].

In Bangladesh, medicinal plants are found grown naturally in forests, bushes and marginal land along the canal and in other places. A long tradition of indigenous herbal medicinal systems, based on the rich local plant diversity is considered a very important component of the primary health-care system. Among the various systems of traditional medicine co-existing within the country are the

homoeopathic, ayurvedic, unani and the traditional medical system. The latter system is practiced by folk or traditional medical practitioners, otherwise known as Kavirajes [7]. There are over 87,000 villages in Bangladesh and most villages have one or two practicing Kavirajes. Knowledge of the medicinal plants used by the Kavirajes of Bangladesh can be a good source for further scientific studies in the quest for better drugs from the medicinal plants used and with lesser side effects. Previous ethno-medicinal studies conducted among traditional and tribal medical practitioners in Bangladesh have noticed considerable variation between the medicinal plants selected by different Kavirajes for treatment of a given ailment [8-23]. These variations exist even between Kavirajes practicing in adjoining villages with identical flora. The objective of the present study was to conduct ethno-medicinal survey among the traditional medical practitioners in Daulatpur Upazila of Kushtia District, Bangladesh.

2. Materials and Methods

2.1. Study Area

The study was conducted in Daulatpur Upazila of Kushtia district, in the southwestern part of Bangladesh. Daulatpur is located at 24.0014°N 88.8750°E. It has

66479 households and total area 468.76 km². Daulatpur Upazila is bounded by Bagha Upazila in Rajshahi District and Lalpur Upazila in Natore District, on the north, Bheramara and Mirpur Upazilas on the east, Gangni Upazila in Meherpur District and Mirpur Upazila in Kushtia District, on the south, and Jalangi CD Block, in Murshidabad district, West Bengal, India, and Karimpur I and Karimpur II CD Blocks, Nadia district, West Bengal, on the west (Figure 1) [24].

2.2. Data Collection

Data were collected through personal interviews during October, 2018 to September, 2019. During the interview, the information was noted in the documentation data sheet. All the information regarding plant species, biological forms, habitat, local names and uses was documented. Medicinal

information was obtained through semi-structured interviews with knowledgeable people such as local Kavirajes. A total of 15 informants having an age range 40-65 years were interviewed using semi-structured interviewed method. Professionally they were farmer, house wives, small shop keepers etc. The information about the plants used for various diseases was gathered through interviews and discussion with the traditional medical practitioners. Plant specimens were collected with flowers and fruits and processed using standard herbarium techniques [25].

2.3. Plant Identification

Collected species were authentically identified with the help of various literatures [26,27,28]. For the current name and up-to-date nomenclature [29] and [30] were also consulted.



Figure 1. Map of the study area

3. Results and Discussion

The present paper focused on medicinal plants used by traditional practitioners in Daulatpur Upazila of Kushtia district, Bangladesh from October 2018 to September 2019. The information about medicinal plants uses of traditional practitioners was collected through interview. A total of 45 medicinal plant species under 43 genera and 33 families have been documented which are used for the

treatment of 48 categories diseases. Out of 45 species, 33.33% species were herb, 22.22% species were shrub, 15.55% species were climber and 28.88% species were used as medicine (Table 1; Figure 2). These medicinal plants are used by the traditional practitioners for the treatment of various diseases like asthma, anemia, burning sensation, blood pressure, constipation, cough, diarrhea, diabetes, dysentery, eczema, fever, headache, heart disease, jaundice, leprosy, toothache, ulcer, skin disease,

snake-bite, wound, and others. In majority cases, leaves (37.37%) of medicinal plants were found leading in terms of 21.31% root, 18.11% stem, 24.17% whole plant, 16.11% seed, 8.56% flower, 12.80% fruit, 5.54% bark, 3.28% petiole, 4.92% rhizome and 2.11% Gum (Figure 3).

The most frequently used species for the treatment of different disease are *Tagetes erecta* L., *Terminalia arjuna* L., *Syzygium cumini* L., *Swietenia mahagoni* (L.) Jacq., *Psidium guajava* L., *Ocimum sanctum* L., *Moringa oleifera* Lam., *Mentha arvensis* L., *Mimosa pudica* L., *Lawsonia inermis* L., *Hibiscus rosa-sinensis* L., *Heliotropium indicum* L., *Ficus racemosa* L., *Datura metel* L., *Carica papaya* L., *Curcuma longa* L., *Cynodon dactylon* (L.) Pers., *Catharanthus roseus* L., *Cinnamomum tamala* (Buch.Ham) Nees & Eberm, *Calotropis gigantea* (L.) W.T.Aiton, *Coccinia cordifolia* (L.) Cogn.,

Bryophyllum pinnatum (Lam.) Oken, *Annona reticulata* L., *Aegle marmelos* (L.) Corr., *Abroma augusta* L., *Azadirachta indica* A. Juss., *Achyranthes aspera* L., *Andrographis paniculata* Wall ex. Nees., *Limonia acidissima* L., *Piper longum* L., *Scoparia dulcis* L., *Solanum nigrum* L., *Acalypha indica* L., *Amaranthus viridis* L., *Amaranthus spinosus* L., *Mangifera indica* L., *Justicia gendarussa* L., *Artocarpus heterophyllum* Lam., *Aristolochia indica* L., *Asparagus racemosus* Willd., *Justicia adhatoda* L., *Mikania cordata* L., *Commelina benghalensis* L., *Vitex negundo* L. and *Centella asiatica* L. This finding of common medicinal plant families in this study is in agreement with [8-23]. So far the information available, no published data documented on the medicinal plants in Daulatpur Upazila of Kushtia district, Bangladesh. The present document will help in identifying the medicinal plants for further investigation.

Table 1. Medicinal Plants Used by Folk Medicinal Practitioners in Daulatpur Upazila of Kushtia District, Bangladesh.

Scientific name	Local name	Family	Habit	Ailments and formulations
<i>Tagetes erecta</i> L.	Gada	Asteraceae	Herb	Paste made from leaves is used cold and bronchitis.
<i>Terminalia arjuna</i> L.	Arjun	Combretaceae	Tree	Juice made from bark mixed with water used in blood pressure. Dust made from dry shoot bark mixed with water used in heart disease. Leaf soaked in water over night in burning sensation.
<i>Syzygium cumini</i> L.	Jam	Myrtaceae	Tree	Applied bark paste is used as wound. Seed paste is taken with sugar or a pinch of salt.
<i>Swietenia mahagoni</i> (L.) Jacq.	Mahagoni	Meliaceae	Tree	Seeds, fruit and root pores prevent cancer. Seed paste is used for the treatment of headache.
<i>Psidium guajava</i> L.	Payara	Myrtaceae	Tree	Decoction of leaves is used in toothache. Fruits are used in diarrhea. Juice made from the stem bark is used in blood dysentery.
<i>Ocimum sanctum</i> L.	Tulshi	Lamiaceae	Herb	Leaf juice is taken orally after mixing with sugar or honey twice a day for 7 days.
<i>Moringa oleifera</i> Lam.	Sojna	Moringaceae	Tree	Leaves are made juice and taken twice a day for two days to cure fever.
<i>Mentha arvensis</i> L.	Pudina	Lamiaceae	Herb	The stomach acids are consumed with mint leaf juice. Fresh leaves can cure headache and dizziness. The oil extraction of these plants cures various skin problems like acne, ulcer and boils.
<i>Mimosa pudica</i> L.	Lojjaboti	Fabaceae	Herb	Decoction of roots is used in fever. Roots of the plants soaked in raw cow milk are used in snake bites. Leaves are dried in the sun and powdered. The powder mixed with coconut oil and applied to the site of infection.
<i>Lawsonia inermis</i> L.	Mehedi	Lythraceae	Shrub	Leaves are made paste and applied on the scalp to increase hair growth. Applied on skin to cure skin disease.
<i>Hibiscus rosa-sinensis</i> L.	Joba	Malvaceae	Shrub	Flower paste is used for burning wounds. Juice made from flowers buds are used for astringent. Juice made from flowers buds mixed with water is used in seminal weakness.
<i>Heliotropium indicum</i> L.	Hatishur	Boraginaceae	Herb	Paste made from leaves is used as skin disease and fever. Juice made from leaves is used in dog bite and insect bite.
<i>Ficus racemosa</i> L.	Jagdumur	Moraceae	Tree	Unripe fruits or boiled fruits are taken orally for diabetes and acidity.
<i>Datura metel</i> L.	Dhutra	Solanaceae	Shrub	Macerated leaves and roots are mixed with oil and applied to affected areas.
<i>Carica papaya</i> L.	Pepe	Caricaceae	Shrub	Fruits pulp is used for abortion and stomachic.
<i>Curcuma longa</i> L.	Holud	Zingiberaceae	Herb	Raw turmeric is made paste and taken to cure above disease. Taken rhizome paste is used as abscess and eczema.
<i>Cynodon dactylon</i> (L.) Pers.	Durba ghas	Poaceae	Herb	Whole plant is plucked and made paste to use at the cut side to stop bleeding. Paste made from whole plants are used as skin disease and wound.
<i>Catharanthus roseus</i> L.	Nayan tara	Apocynaceae	Herb	Whole plant is plucked and made juice which helps in leukemia.
<i>Cinnamomum tamala</i> (Buch.Ham) Nees & Eberm	Tajpata	Lauraceae	Tree	Stomach pain is relieved by feeding leaves and bark. 5-7gm bitter powder and bake 3-4cups of water and cook a little while coughing and breakdown. Tejpata boiled in water and helps digestion.
<i>Calotropis gigantea</i> (L.) W.T.Aiton	Akando	Asclepiadaceae	Shrub	Leaves mixed with mustered and applied to painful area.
<i>Coccinia cordifolia</i> (L.) Cogn.	Telakucha	Cucurbitaceae	Climber	Green leaf is taken orally for treatment of diabetes; leaf juice is applied to head to keep head cool. Juice is taken for dysentery.
<i>Bryophyllum pinnatum</i> (Lam.) Oken	Pathorkuchi	Crassulaceae	Herb	Leaf juice is prescribed once daily 5-6 days for blood dysentery.

Scientific name	Local name	Family	Habit	Ailments and formulations
<i>Annona reticulata</i> L.	Ata	Annonaceae	Tree	Paste made from seeds in applied into vagina for abortion. Taken leaves paste is used as abscess.
<i>Aegle marmelos</i> (L.) Corr.	Bel	Rutaceae	Tree	Unripe wood apple is made pieces and used in stomachache. Ripe wood apple is made juice and taken to cure constipation. Applied young leaves juice is use as abscess.
<i>Abroma augusta</i> L.	Ulotkombol	Sterculiaceae	Shrub	Petiole is kept in water during night, In morning juice is taken with sugar. Irregular menses and pain, dysentery, weakness.
<i>Azadirachta indica</i> A. Juss	Neem	Meliaceae	Tree	Leave paste mixed in warm process water while bathing used for skin disease. Leaves juice used as anti-helminthic. Stem is used for toothache.
<i>Achyranthes aspera</i> L.	Apang	Amaranthaceae	Herb	Decoction of root is used in traumatic injury. Juice made from leaves is used in tonsillitis. Juice of roots is used in abortion.
<i>Andrographis paniculata</i> Wall ex. Nees.	Kalomegh	Acanthaceae	Herb	Juice made from whole plants is used in diarrhea, fever. Juice obtained from macerated leaves is mixed with water is used in liver disorders.
<i>Limonia acidissima</i> L.	Kodbel	Rutaceae	Tree	Physical weakness is relieved by feeding the leaf juice.
<i>Piper longum</i> L.	Pipulty	Piperaceae	Climber	Cooked green leaves and dried to fresh fruits mixed with vegetables are used for female lactic increase in the lactation stage.
<i>Scoparia dulcis</i> L.	Bonmorich	Scrophulariaceae	Herb	Leaf juices are used to cure ulcer, bronchitis, and diarrhea. Whole plant is made paste and used to cure diabetes.
<i>Solanum nigrum</i> L.	Kaimalai	Solanaceae	Herb	Decoction and also aqueous extract of the leaves is very useful in dropsy for its diuretic action. Paste of the green fruit is applied to ringworm.
<i>Acalypha indica</i> L.	Muktajhuri	Euphorbiaceae	Herb	Leaf paste with lime juice prescribed for ringworm. Leaf juice is emetic for children. Paste of fresh part applied on the affected area treating for snake bite.
<i>Amaranthus viridis</i> L.	Shaknotey	Amaranthaceae	Herb	Leaves are boiled with roots and smashed then taken. The plant juice mixed with water taken orally to cure this disease once daily 2-3weeks. Whole plant used for good health and immunity.
<i>Amaranthus spinosus</i> L.	Katanotey	Amaranthaceae	Herb	Decoction of the herb is used as a mouth-wash for toothache. Leaves juice is used for dysentery. Leaves paste is given to burning wounds.
<i>Mangifera indica</i> L.	Amm	Anacardiaceae	Tree	Decoction of the leaves is given to cure fever, diarrhea and toothache. Gums paste is used in skin disease.
<i>Justicia gendarussa</i> L.	Modhugach	Acanthaceae	Shrub	Juice obtained from fresh stem of the plant is mixed with cold water or boiled with cow milk taken orally those times a day. Leaf stalk powder mixed with neem paste is taken orally for diabetes. About 10 ml of leaf juice is given twice a day for 5days to treat jaundice. The plant oil is effective in reducing pain and edema.
<i>Artocarpus heterophyllus</i> Lam.	Kathal	Moraceae	Tree	Gum is used to dry hemorrhoids and cracked heels.
<i>Aristolochia indica</i> L.	Eswarmul	Aristolochiaceae	Herb	Roots and rhizome are used as gastric stimulant and bitter tonic. Juice of leaves is used in cough.
<i>Asparagus racemosus</i> Willd.	Satamuli	Liliaceae	Climber	Juice made from the tuberous roots is used in diarrhea and diabetes. Root paste is used to cure seminal weakness. Root juice used in leucorrhoea.
<i>Justicia adhatoda</i> L.	Bashak	Acanthaceae	Shrub	Juice made from young leaves is used in cough, fever.
<i>Mikania cordata</i> L.	Asamlata	Asteraceae	Climber	Juice of leaves is applied as injury.
<i>Commelina benghalensis</i> L.	Kanra	Commelinaceae	Herb	Roots are administered orally in the raw state. Juice made from roots is used in blood pressure and heart disease.
<i>Vitex negundo</i> L.	Nisinda	Verbenaceae	Shrub	Juice of root is used in fever. Juice of leaves is used in headache.
<i>Centella asiatica</i> L.	Thankuni	Apiaceae	Herb	Leaf juice is mixed with sugar or honey is used of blood dysentery. Leaf juice is taken to control diabetes.

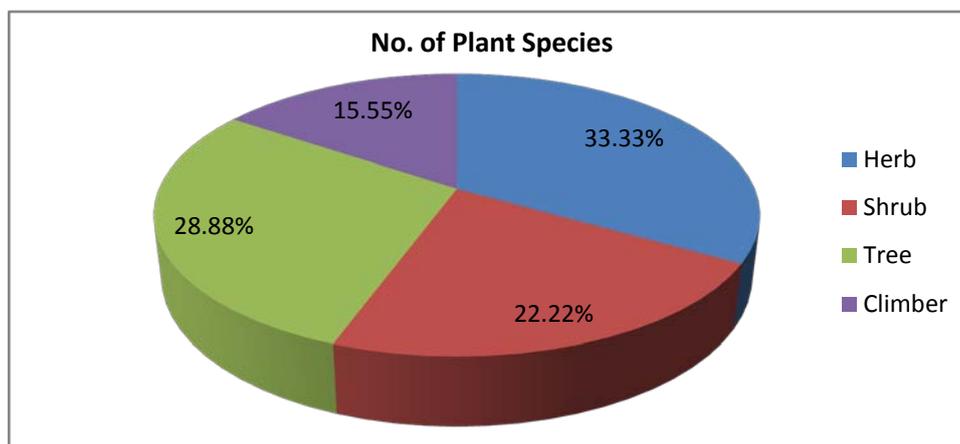


Figure 2. Recorded plant habit in the study area

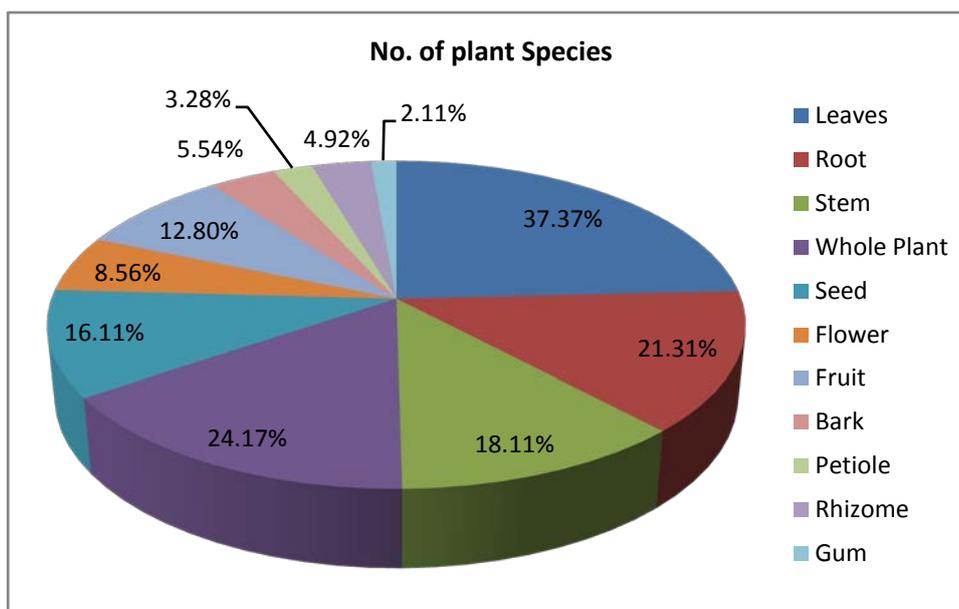


Figure 3. Recorded plant parts used in different diseases

4. Conclusion

The justification of medicinal plant usage by folk medicinal practitioners and their mode of usage indicate that this knowledge will be useful to investigate those plants' use in modern science. At the same time, scientific justification of the various medicinal plants' use by the traditional practitioners can go a long way towards conservation and cultivation of these plant species. Finally, it can be concluded that availability of native medicinal plant species can be ensured through management of areas that are rich in plants with important medicinal properties with the development of rural and community based resources. All these plants need to be evaluated through phyto and pharmaco-chemical investigations to discover their potentiality and may help in discovering effective drugs for human health care.

Acknowledgements

The authors are grateful to the local people in Doulatpur Upazila of Kushtia District, Bangladesh for their co-operation and help during the research work.

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