



Medicinal Plants used by Traditional Healers in Lohagara Upazila of Narail District, Bangladesh

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Abstract

Medicinal plants used by traditional healers in Lohagara Upazila of Narail district, Bangladesh was recorded from November 2018 to March 2020. The present paper deals with traditional uses of 101 medicinal plant species 89 genera and 55 families along with correct botanical identification. Semi-structured interviewees, observation and guided field walk with informants were employed to obtain medicinal data in the study area. In the area, a total of 73 human diseases were recorded and treated with various plant species and preparations. For each species, scientific name, local name, family, habit, diseases, mode of administration and part(s) used are provided. The study aims to bring awareness among the people, to save this precious knowledge and protect these plants, for the next generation.

Keywords: Medicinal plants; Indigenous Uses; Herbal Medicine; Narail District; Bangladesh

Introduction

The plant having properties to cure the disease and have the same properties as Pharmaceutical drugs are called medicinal plants. These plants are rich in those ingredients which are used in the preparation of medicine [1]. Medicinal plants are being used for the treatment of various diseases by the tribal people for a generation. Medicinal plants are an essential part of the human health care system because of less expensive, lesser side effects and toxicity [2]. Sometimes, the medicine is also called herbal medicine due to its properties. The tribal people prefer to use medicinal plant and plant-based medicine because of the cheap price and easy availability as compared to costly pharmaceuticals' [3]. These people have inherited indigenous knowledge of medicinal plants from their ancestors since time immemorial; and they discover the therapeutic activity of medicinal plants against diseases through their traumatic experiences [4].

The rudimental knowledge of medicinal plants is scientifically and culturally very significant to society. According to the local people, plants not only have nutritional

value but also have medicinal and ritual values. These plants play a vital role in the development of drugs. World Health Organization estimates that 80% of populations from many countries are using traditional folk medicine to cure various ailments [5]. The main objective of this study is to identify and assess the indigenous knowledge of the medicinal plants present in several villages in Lohagara Upazila of Narail district, Bangladesh.

Materials and Methods

Study Area

Lohagara Upazila (Narail district) area 290.83 sq km, located in between 23°05' and 23°19' north latitudes and in between 89°29' and 89°46' east longitudes. It is bounded by Mohammadpur Upazila on the north, Kalia Upazila on the south, Alfadanga, Kashiani and Gopalganj sadar Upazilas on the east, Narail Sadar and Shalikhha Upazilas on the west. The study area of Lohagara Upazila experiences a typical tropical monsoon climate, with hot wet summers from May to September and cool dry winters. The rainy season occurs

approximately from May to October [6].

Methodology

The present work is the outcome of an extensive survey in Lohagara Upazila of Narail district, Bangladesh undertaken from November 2018 to March 2020 to collect information on the medicinal uses of different plant species. A total of 101 species belonging to 89 genera under 55 families were recorded. Medicinal information was obtained through semi-structured interviews with knowledgeable traditional healers. A total of 207 informants having an age range of 27-79 years were interviewed using the semi-structured interviewed method [7]. Plant parts with either flowers or fruits collected using traditional herbarium techniques to make voucher specimens for documentation and voucher specimens have been preserved at Herbarium of Rajshahi University.

Identification

Collected specimens have been critically examined, studied and identified. Identifications have been confirmed by consulting standard literature. Nomenclature has been updated following recent literature [8-12].

Results and Discussion

Medicinal plants survey was employed to collect information from traditional healers in Lohagara Upazila of Narail district, Bangladesh was recorded from November 2018 to March 2020. One hundred and one medicinal plant species 89 genera belonging to 55 families were reported by the traditional healers for the treatment of 73 human ailments in the study area. For each species, scientific name, local name, family, habit, diseases, mode of administration and part(s) used are provided. The result of this information showed that these traditional healers in the study area still depend on medicinal uses of plants for the treatment of asthma, anaemia, abdominal pain, alopecia, burning sensation, blood dysentery, dyspepsia, bronchitis, diuretic, constipation, cough, chronic fever, chicken fox, dog bite, dysentery, diabetes, eczema, heart disease, high blood pressure, headache, inflammation, jaundice, leprosy, mouth ulcer, malarial fever, menstrual bleeding, piles, scabies, rheumatism, skin cracks, scurvy, snake bite, stomachache, swelling, toothache, tumours, throat pain, tuberculosis, ulcers, vomiting, wound, weakness, and many types of diseases. This is the first-ever exploration of the study area which will assist the new researcher in future especially in the field of traditional medicinal plants.

Out of 101 species, 38.61% species were herb, 17.82% species were shrub, 9.90% species were climber and 33.66%

tree species were used as medicine (Table 1, Figure 1). Different plant parts of different spp. are used as medicine for treating various diseases; leaf of 45.54%, the bark of 16.83%, the fruit of 21.78%, the root of 20.79%, seed of 12.87%, stem of 5.94%, whole plant of 18.81%, flowers of 3.96%, the rhizome of 2.79%, gum of 3.96%, petiole of 1.98%, bulb of 1.98% and latex of 0.99% species were used as medicine (Figure 2). The distribution of medicinal plant species in the families shows variation. Out of 55 families, 2.97% species were used in the family Lamiaceae, followed by 3.96% Apocynaceae, 2.97% Cucurbitaceae, 4.95% Rutaceae, 2.97% Moraceae, 4.95% Fabaceae, 3.96% Malvaceae, 3.96% Piperaceae, 4.95% Euphorbiaceae, 2.97% Solanaceae, 2.97% Araceae and 2.97% Asteraceae (Figure 3). Out of 73 categories of diseases, fever (18.81%), dysentery (16.83%), cough (11.88%), diarrhoea (9.09%), asthma (9.09%), diabetes (10.89%), skin disease (10.89%) and jaundice (9.09%) was dominant diseases in the study area (Figure 4).

The collected medicinal information is comparable with the result of other studies in Bangladesh and foreign. In Bangladesh, a total of 70 medicinal plant species under 36 families were recorded in the Bandarban district [13]. 86 plant taxa belonged to 84 genera under 46 families were recorded in Garo ethnic community, Tangail [14]. A total of 111 species under 93 genera of 53 families have been documented which are used for the treatment of various diseases [15]. Forty medicinal plants have been documented in Paba Upazila of Rajshahi [16]. A total of 45 medicinal plants under 43 genera and 33 families have been recorded in Daulotpur Upazila of Kushtia District, Bangladesh [17]. 111 medicinal plants used to cure various diseases in Rajshahi metropolitan city [18]. A total of 52 plant species under 50 genera and 37 families have been documented in Jamalpur district [19]. A total of 93 medicinal plants were recorded in the Chapai Nawabganj district [20].

A total of 105 plant species under 97 genera belonging to 57 families were recorded in the Dinajpur district [21]. A total of 61 medicinal plants were recorded in Sadar Upazila of Joypurhat District [22]. 94 medicinal leafy vegetables were recorded in Rajshahi [23]. A total of 127 plant species under 105 genera of 66 families have been documented in Puthia Upazila of Rajshahi [24]. A total of 147 medicinal angiosperm weeds was documented in Rajshahi metropolitan city [25]. In India, a total of 40 plant species 37 genera and 28 families were recorded for medicinal purposes [26]. In Ethiopia, 47 medicinal plant species belonging to 23 families were reported by the traditional healers for the treatment of various human ailments [27]. In Pakistan, a total of 81 plants are recorded as medicinal belonging to 45 families and 75 genera [28]. In Nigeria, a total of one hundred and three (103) medicinal species belonging to fifty-two (52) families were

identified [29]. In Pakistan, a total of 150 medicinal plants belonging to 98 genera and 60 families were documented [30]. In Kenya, a total of 66 plant species under 58 genera belonging to 36 families were reported as medicinal values [31]. The present findings showed that there was a high diversity of plant species used in traditional medicine by the traditional healers in Lohagara Upazila of Narail district, Bangladesh. Medicinal plants traditionally used as remedies

for various illnesses and health problems were proven to have bioactivity properties due to their phytochemical compounds. Documentation of indigenous knowledge on traditional medicine generated in this research has an important role in preserving best practices on traditional medicine which serve as the basis for new drug discovery in modern medicine.

Scientific name and family	Local name	Habit	Parts used	Diseases	Mode of administration
<i>Abelmoschus esculentus</i> (L.) Moench (Malvaceae)	Dherosh	Herb	Fruit	Stomachic, Hair fall, Female weakness, Constipation	Fruit juice is taken internally, Paste of fruits are taken externally, Young fruit is taken orally, Eaten raw after cooked
<i>Abroma augusta</i> L.f. (Sterculiaceae)	Ulotkomol	Shrub	Seed, Petiole	Stomach pain, Weakness	Seed paste is taken orally, Petiole is taken internally
<i>Acalypha indica</i> L. (Euphorbiaceae)	Muktha jhuri	Herb	Leaf	Snake bite, Ringworm	Leaf paste is taken externally, Leaf juice taken orally
<i>Amaranthus viridis</i> L. (Amaranthaceae)	Shaknote	Herb	Whole plant	Leprosy	Whole plant juice is taken orally
<i>Amaranthus spinosus</i> L. (Amaranthaceae)	Katanotey	Herb	Whole plant	Dysentery, Burning wound, Toothache	Leaf juice is taken internally, Leaf paste is taken externally, Whole plant decoction is used
<i>Allium cepa</i> L. (Liliaceae)	Piaj	Herb	Bulb	Cough and cold, Headache and Snake bite	Warm bulb juice is taken internally, Warm bulb juice taken externally
<i>Allium sativum</i> L. (Liliaceae)	Roshun	Herb	Bulb	Blood pressure, Eczema, Cough and Fever	Bulb is taken orally, Paste of bulb is taken externally
<i>Alstonia scholaris</i> (L.) R.Br. (Apocynaceae)	Chatim	Tree	Bark, Gum	Gastric problem and Rheumatism, Ulcers	Bark juice is taken internally, Milky gum juice is taken orally
<i>Aloe vera</i> (L.) Burm.f. (Aloeaceae)	Ghrito kumari	Herb	Leaf	Paralysis, Viral Jaundice, Body weakness, Skin care, Hair treatment	Leaf juice taken orally, Paste of leaf is taken externally
<i>Acacia nilotica</i> (L.) Willd. Ex Del. (Fabaceae)	Babla	Tree	Leaf, Bark, Fruit	Leucoderma, Dysentery, Bronchitis and Intestinal problem	Decoction of leaf is taken orally, Fruit juice taken internally, Bark juice is taken orally
<i>Aegle marmelos</i> L. (Rutaceae)	Bel	Tree	Fruit, Root	Stomachache, Constipation, Diarrhea and Heart disease	Unripe fruit is taken internally, Ripe fruit is taken orally, Juice of root is taken internally
<i>Andrographis paniculata</i> (Burm.f.) Nees. (Acanthaceae)	Kalomegh	Herb	Leaf	Fever, Cholera, Headache and Diarrhea, Lung infection and Leprosy	Leaf juice is taken orally, Raw Leaf is taken externally

<i>Areca catechu</i> L. (Arecaceae)	Supari	Tree	Fruit, Seed, Root	Dyspepsia, Blood dysentery, Toothache	Fruit juice is taken orally, Decoction of seed is taken internally, Root power is taken externally
<i>Artocarpus heterophyllus</i> Lamk. (Moraceae)	Kathal	Tree	Root, Leaf	Diarrhea, Scabies, Weakness	Decoction of root is taken internally, Paste of young leaf is used externally, Unripe fruit is taken internally
<i>Argemone mexicana</i> L. (Papaveraceae)	Shialkata	Herb	Leaf, Root, Latex	Malarial fever, Jaundice, Skin cracks	Leaf and root juice is taken internally, Latex is used externally
<i>Asparagus racemosus</i> Willd. (Liliaceae)	Shotomuli	Climber	Whole plant, Root	Diarrhea, Rheumatism, Diabetes and Dysentery Infertility and Miscarriage	Whole plant juice is taken internally, Root juice is taken internally
<i>Averrhoa carambola</i> L. (Oxalidaceae)	Kamranga	Tree	Fruit, Leaf	Piles, Fever and Dysentery Liver pain	Fruit juice is taken orally, Leaf juice with sugar is taken internally
<i>Azadirachta indica</i> L. (Meliaceae)	Neem	Tree	Leaf	Chicken pox and Skin disease, Jaundice, Toothache	Leaf paste is taken externally, Leaf juice is taken orally, Stem is taken externally
<i>Basella alba</i> L. (Basellaceae)	Puisakh	Climber	Leaf, Root	Burning sensation, Constipation	Leaf paste taken externally, Leaf juice taken orally
<i>Brassica napus</i> L. (Brassicaceae)	Sorisa	Herb	Seed	Hair treatment and Cough, Skin crack	Oil extract from seed is taken externally
<i>Bombax ceiba</i> L. (Malvaceae)	Simultula	Tree	Gum, Root	Rheumatism, Male weakness, Burning sensation	Young root is taken internally, Gum paste is taken externally
<i>Carica papaya</i> L. (Caricaceae)	Pepa	Shrub	Bark, Root, Flower	Toothache, Gonorrhoea Abdominal pain and Stimulation	Bark juice is taken internally, Macerated root is used orally, Flower with milk is taken internally
<i>Citrus aurantifolia</i> (Christm. & Panzer) Swingle (Rutaceae)	Lebu	Shrub	Fruit	Balanced diet, Increase digestive power and appetite, Skin irritation and nausea	Fruit juice taken orally
<i>Centella asiatica</i> (L.) Urban (Apiaceae)	Thankuni	Herb	Whole plant	Loose motion and Dysentery, Stomach pain, Tuberculosis	Whole plant paste is taken internally
<i>Calotropis procera</i> (Aiton) W.T. Aiton (Asclepiadaceae)	Akando	Shrub	Latex, Leaf	Rheumatism and Paralysis, Body pain	Latex with mustard oil is taken externally, Warm leaf is taken externally
<i>Coloasia esculenta</i> (L.) Schott (Araceae)	Kochu	Herb	Leaf, petiole	Stop bleeding, Tumor and Cancer	Leaf juice is taken externally
<i>Coccinia grandis</i> (L.) Voigt. (Cucurbitaceae)	Telakocha	Climber	Leaf	Fever, Vomiting, Hypertension	Leaf juice is taken orally

<i>Clerodendrum viscosum</i> Vent. (Verbenaceae)	Vatpata	Shrub	Leaf, Root	Asthma, TumorsSkin disease, Hair disease	Leaf paste is taken externally
<i>Croton boplandianus</i> Baill. (Euphorbiaceae)	Bonmorich	Herb	Seed	Jaundice, abdominal dropsy, internal abscess	Seed juice is taken internally
<i>Coriandrum sativum</i> L. (Apiaceae)	Dhonia	Herb	Whole plant	Asthma, Cold, Fever	Whole plant juice with salt is taken orally
<i>Catharanthus roseus</i> (L.) G. Don. (Apocynaceae)	Noyntara	Herb	Whole plant	Child Leukemia	Whole plant juice is taken internally
<i>Curcuma longa</i> L. (Zingiberaceae)	Holud	Herb	Rhizome, Flower	Eczema, Cold fever, Dysentery and Gonorrhea, Gastric problem	Rhizome paste is taken externally, Rhizome juice is taken orally, Flower paste is taken internally
<i>Cinnamomum tamala</i> (Buch.-Ham.) Nees & Eberm. (Lauraceae)	Tejpata	Tree	Leaf, Bark	Cold cough, Bronchitis, Diabetes	Leaf juice is taken orally
<i>Clitoria ternatea</i> L. (Fabaceae)	Oparajita	Climber	Root, Leaf	Headache, Throat pain, Swellings, Tuberculosis gland	Leaf paste is used externally, Decoction root is used internally
<i>Cuscuta reflexa</i> Roxb. (Cuscutaceae)	Shornolata	Parasitic Herb	Stem, Leaf	Constipation, Liver disorder, Antioxidant	Stem decoction is taken internally, Decoction leaf of juice is taken orally
<i>Cissus quadrangularis</i> L. (Vitaceae)	Harjora	Climber	Whole plant, stem, Leaf	Broken limb, Survey and irregular menstruation, Asthma, Indigestion, Piles	Whole plant juice is used in orally, Paste of stem is taken internally, Leaf juice mixed with water is taken orally
<i>Cocos nucifera</i> L. (Arecaceae)	Narkel	Tree	Fruit, Root	Kidney problems, Stomach pain	Fruit juice is taken orally, Root juice is taken internally
<i>Capsicum frutescens</i> L. (Solanaceae)	Morich	Herb	Leaf, Fruit	Night blindness, Headache, Blood dysentery	Leaf juice is taken internally, Leaf paste is taken externally, Dry fruit powder is taken internally
<i>Carissa carandas</i> L. (Apocynaceae)	Karamcha	Shrub	Fruit, Root bark	Diabetes and Wound	Ripe fruit is taken orally, Decoction of the root bark is taken internally
<i>Cynodon dactylon</i> (L.) Pers. (Poaceae)	Durba	Herb	Whole plant	Stop bleeding	Whole plant paste is taken externally
<i>Datura metel</i> L. (Solanaceae)	Dhutra	Shrub	Leaf	Rheumatic pain, Skin disease	Leaf juice is taken internally, Leaf paste with neem is applied externally
<i>Dillenia indica</i> L. (Dilleniaceae)	Chalta	Tree	Fruit	Nervous system problem	Fruit juice taken internally
<i>Diospyros malabarica</i> (Desr.) Kostel. (Ebenaceae)	Ghab	Tree	Fruit, Leaf, Stem	Dyspepsia, Cough	Fruit power juice is taken internally, Leaf juice is taken orally

<i>Dalbergia sissoo</i> Roxb. (Fabaceae)	Sisso	Tree	Leaf, Bark	Dysentery, Gonorrhoea, Hemorrhage	Decoction of leaf is taken internally, Dried bark paste is taken externally
<i>Elaeocarpus floribundus</i> Bl. (Elaeocarpaceae)	Jolpai	Tree	Leaf, Fruit	Dysentery and Diarrhea, Poisoning	Fruit is taken internally, Leaf juice is taken orally
<i>Enhydra fluctuans</i> Lour. (Asteraceae)	Helencha	Herb	Whole plant	Fever	Curry made from whole plant is taken internally
<i>Euphorbia hirta</i> L. (Euphorbiaceae)	Dhudia	Herb	Whole plant	Dysentery, Bronchitis, Fungal affection	Whole plant paste is taken internally
<i>Ficus hispida</i> L.f. (Moraceae)	Dumur	Tree	Fruit	Diabetes, Jaundice	Fruit juice is taken internally
<i>Ficus racemosa</i> L. (Moraceae)	Jogdumur	Tree	Fruit	Diabetes, Dry cough, Asthma, Loose motion	Cooked vegetable is taken orally
<i>Heliotropium indium</i> L. (Boraginaceae)	Hatishur	Herb	Leaf	Dog bite and Insect bite	Leaf juice is taken externally
<i>Hibiscus rosa-sinensis</i> L. (Malvaceae)	Joba	Shrub	Flower	Hair treatment and Burning wound, Irregular menstruation	Flower paste is taken externally, Flower paste mixed with water is taken orally
<i>Ipomoea aquatica</i> Forssk. (Convolvulaceae)	Kolmi	Herb	Whole plant	Jaundice, Bronchitis, Leprosy, Fever	Whole plant paste is taken internally
<i>Justicia adhatoda</i> L. (Acanthaceae)	Basak	Shrub	Whole plant, Leaf	Bleeding piles, Cough and Fever	Whole plant paste is taken externally, Leaf juice is taken orally
<i>Justicia gendarussa</i> Burm.f. (Acanthaceae)	Bijtarop	Herb	Leaf	Headache	Leaf juice with mustard oil is taken externally
<i>Kalanchoe pinnata</i> (Lam.) Pers. (Crassulaceae)	Pathorkuci	Herb	Whole plant	Bites of insect	Whole plant paste is taken externally
<i>Ocimum sanctum</i> L. (Lamiaceae)	Ramtulsi	Herb	Leaf	Gastric disorder, Cold, Cough, Bronchitis	Leaf juice is taken orally
<i>Ocimum tenuiflorum</i> L. (Lamiaceae)	Tulsi	Herb	Leaf	Cough, Fever, Bronchitis	Leaf juice is taken orally
<i>Opuntia dillenii</i> (Ker.-Gawl.) Haw. (Cactaceae)	Fhoni monosha	Shrub	Whole plant, Leaf, Fruit	Gonorrhoea, Asthma, Whooping cough, Tumour and leucoderma	Ripe fruit is taken internally, Decoction of leaf is taken orally, Whole plant juice is taken orally
<i>Oxalis corniculata</i> L. (Oxalidaceae)	Amrul	Herb	Leaf	Stomach pain, Scurvy	Decoction of leaf extracted with water is taken orally
<i>Lawsonia inermis</i> L. (Lythraceae)	Mehedi	Shrub	Leaf	Skin disease, Hair treatment	Leaf paste is taken externally
<i>Limonia acidissima</i> L. (Rutaceae)	Kodhbel	Tree	Fruit	Digestion, Heart disease, Piles	Fruit juice is taken internally
<i>Litchi chinensis</i> Sonn. (Sapindaceae)	Lichu	Tree	Fruit	Heart, Brain, Liver	Fruit juice is taken orally

<i>Mikania cordata</i> (Burm.f.) Rob. (Asteraceae)	Asamlata	Climber	Leaf	Stop bleeding	Leaf paste is taken externally
<i>Momordica charantia</i> L. (Cucurbitaceae)	Korola	Climber	Fruit, Whole plant	Diabetes, Fever	The juice of the fruit is taken internally, Whole plant juice is taken
<i>Murraya koenigii</i> (L.) Spreng. (Rutaceae)	Paharineem	Tree	Leaf	Chicken pox, Skin disease, Jaundice	Leaf paste is taken externally, Leaf juice is taken orally
<i>Murraya paniculata</i> (L.) Jack. (Rutaceae)	Kamini	Shrub	Leaf, Root Bark	Diarrhea and dysentery, Cough and rheumatism	Leaf extract is taken orally, Root bark juice is taken internally
<i>Mangifera indica</i> L. (Anacardiaceae)	Amm	Tree	Leaf, Gum	Fever and Toothache, Skin disease	Leaf juice is taken orally, Gum paste is taken externally
<i>Musa sapientum</i> L. (Musaceae)	Kola	Herb	Stem, Bark	Stop bleeding, Snake bite	Stem and bark juice is taken externally
<i>Mimusops elengi</i> L. (Sapotaceae)	Bokul	Tree	Flower, Stem Bark	Asthma, Bleeding gums, swelling	Flower smell is taken, Stem-bark decoction is popularly used internally
<i>Marsilea minutia</i> L. (Marsileaceae)	Marsilia	Herb	Leaf	Diuretic and febrifuge, Snakebite and Abscess	Leaf juice is taken internally, Leaf paste is taken externally
<i>Moringa oleifera</i> Lam. (Moringaceae)	Sogina	Tree	Leaf, Root, Fruit	Diabetes, Blood pressure, Cold-cough, Abdominal pain, Fever	Dry leaf power with water is taken internally, Eaten raw after cooked, Leaf juice is taken internally, Root extract is taken orally
<i>Nigella sativa</i> L. (Ranunculaceae)	Kalojira	Herb	Seed	Asthma, High blood pressure	Seed extract is taken internally
<i>Nymphaea nouchali</i> Burm f. (Nymphaeaceae)	Sapla	Herb	Rhizome, Leaf	Dysentery, Burning spot	Dried rhizome power is taken internally, Leaf paste is taken externally
<i>Nyctanthes arbor-tritis</i> L. (Oleaceae)	Sheuli	Tree	Bark, Leaf, Root	Chronic fever, Bronchitis, Rheumatic fever	Leaf juice mixed with honey is taken orally, Bark juice is taken internally
<i>Piper betle</i> L. (Piperaceae)	Pan	Climber	Leaf	Louse killing and cough	Leaf juice is taken externally
<i>Piper chaba</i> Trel. & Yunck. (Piperaceae)	Chui	Climber	Fruit	Swelling and pain, Mouth ulcer and inflammation	Fruit paste is taken externally, Fruit powder mixed with honey is taken internally
<i>Piper longum</i> L. (Piperaceae)	Pipul	Herb	Leaf	Fever, Dyspepsia, Asthma	Leaf paste mixed with ghee is taken internally
<i>Polyalthia longifolia</i> (Sonn.) Benth. & Hook. f. (Annonaceae)	Debdaru	Tree	Seed	Allergy treatment	Seed paste is used externally
<i>Phoenix sylvestris</i> Roxb. (Arecaceae)	Khajur	Tree	Fruit	Toothache, Heart complaints, Fever, Vomiting, Gonorrhoea	Ripe fruit is taken internally

<i>Peperomia pellucida</i> Kunth. (Piperaceae)	Bonpan	Herb	Root, Whole plant	Fever and Wound, Renal problem	Root juice is taken internally, Whole plant decoction is used internally
<i>Phaseolus vulgaris</i> L. (Fabaceae)	Shim	Climber	Pod, Seed.	Diabetes, Blood cancer, Rheumatism, Arthritis	Dried pod is taken internally, Seed paste is taken orally
<i>Polygonum hydropiper</i> (L.) Del. (Polygonaceae)	Biskatali	Herb	Whole plant	Diarrhea, Dyspepsia, Menstrual bleeding	Whole plant juice is taken internally
<i>Psidium guajava</i> L. (Myrtaceae)	Peara	Tree	Leaf	Diarrhea and Dysentery, Mouth wash	Leaf decoction is taken internally, Young leaf is taken orally
<i>Phyllanthus emblica</i> L. (Phyllanthaceae)	Amloki	Tree	Fruit, Bark	Diabetes, Stomach pain, Skin disease	Young fruit is taken internally, Fruit power and bark juice is taken orally
<i>Phyllanthus reticulatus</i> Poir. (Euphorbiaceae)	Chitki	Shrub	Whole plant	Anemia and intestinal hemorrhage	Whole plant juice is taken internally
<i>Rauvolfia serpentina</i> (L.) Benth.ex Kurz. (Apocynaceae)	Sorphogondha	Herb	Root	Blood pressure and Dysentery	Extract of root is taken internally
<i>Ricinus communis</i> L. (Euphorbiaceae)	Bherena	Shrub	Leaf, Seed	Jaundice, Dysentery, Constipation	Leaf juice is taken orally, Oil extract from seed if taken internally
<i>Spondias pinnata</i> (L.f.) Kurz. (Anacardiaceae)	Amra	Tree	Bark, Root	Irregular menstruation, Dysentery, Diarrhea and vomiting	Juice of root is taken orally, Infusion of bark is taken internally
<i>Solanum nigrum</i> L. (Solanaceae)	Titbegun	Herb	Leaf, Fruit	Dropsy, Ringworm	Decoction of leaf is taken orally, Green fruit is taken internally
<i>Saccharum officinarum</i> L. (Poaceae)	Aakh	Shrub	Stem	Jaundice, Urinate problem	Stem juice is taken orally
<i>Syzygium cumini</i> (L.) Skeels. (Myrtaceae)	Jham	Tree	Bark, Seed	Asthma, Diabetes	Grinding bark decoction is taken orally, Seed power is taken internally
<i>Syzygium samarangense</i> (Blume) Merr. & Perry (Myrtaceae)	Jamrul	Tree	Fruit	Fever	Fruit juice taken internally
<i>Targetes ercta</i> L. (Asteraceae)	Gendaful	Herb	Whole plant, Leaf	Bleeding, Dysentery	Whole plant paste is taken externally, Leaf juice is taken orally
<i>Terminalia arjuna</i> (Roxb.) Wight & Arn. (Combretaceae)	Arjune	Tree	Bark	Heart disease, Blood pressure	Decoction of bark is taken

<i>Terminalia catappa</i> L. (Combretaceae)	Kathbadam	Tree	Leaf, Bark, Root	Fever, Diarrhea, Diabetes, Skin diseases, Indigestion	Bark and root juice is taken orally, Paste of bark is taken externally, Leaf juice is taken orally
<i>Terminalia chebula</i> Retz. (Combretaceae)	Horitoki	Tree	Seed, Fruit	Vomiting, Dysentery	Seed power is taken orally, Fruit power is taken internally
<i>Tamarindus indica</i> L. (Fabaceae)	Tetul	Tree	Fruit, Seed, Leaf, Stem, Bark	Mouth Disease, Blood Dysentery, Dyspepsia, Gastric and Fever	Stem and bark decoction is taken orally, Leaf juice is taken internally, Seed power is taken orally, Ripe fruit pulp is taken internally
<i>Trichosanthes dioica</i> Roxb. (Cucurbitaceae)	Potol	Climber	Leaf, Fruit	Jaundice, Diuretic, Alopecia	Leaf and fruit juice is taken internally, Leaf paste is taken externally
<i>Wedelia chinensis</i> (Osbeck) Merr. (Asteraceae)	Mohavringhoraj	Herb	Leaf	Alopecia, Hair disease, Stop vomiting	Leaf paste is taken externally
<i>Ziziphus mauritiana</i> Lam. (Rhamnaceae)	Boroi	Tree	Root	Dyspepsia, Fever, Wounds and cancer	Root juice is taken internally, Paste of root is taken externally
<i>Zingiber officinale</i> Roscoe (Zingiberaceae)	Adha	Herb	Rhizome	Indigestion, Cold-cough, Catarrhal fever, Gout, Sickness	Rhizome juice is taken orally

Table 1: Medicinal plants used by traditional healers in several villages at Lohagara Upazila of Narail District, Bangladesh.

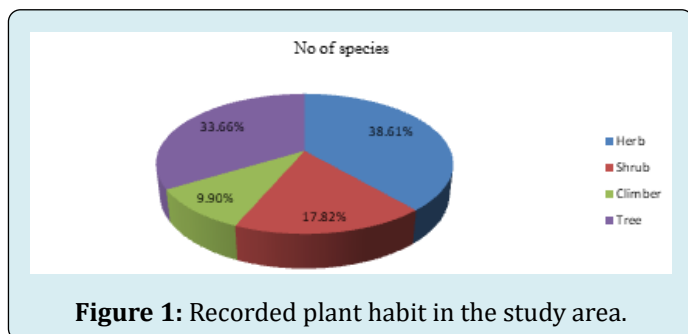


Figure 1: Recorded plant habit in the study area.

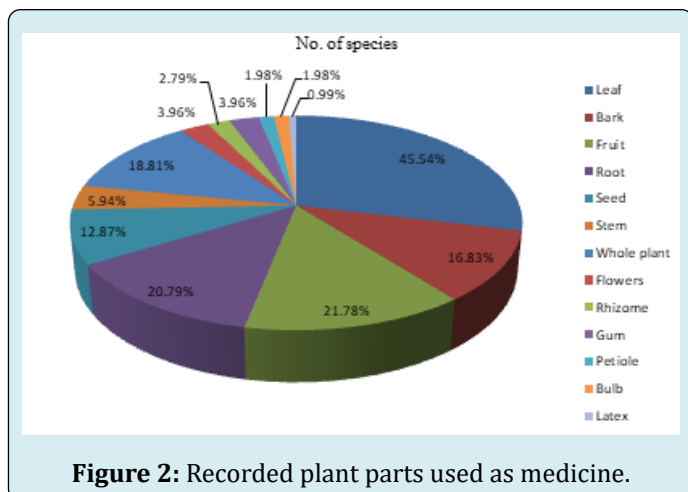


Figure 2: Recorded plant parts used as medicine.

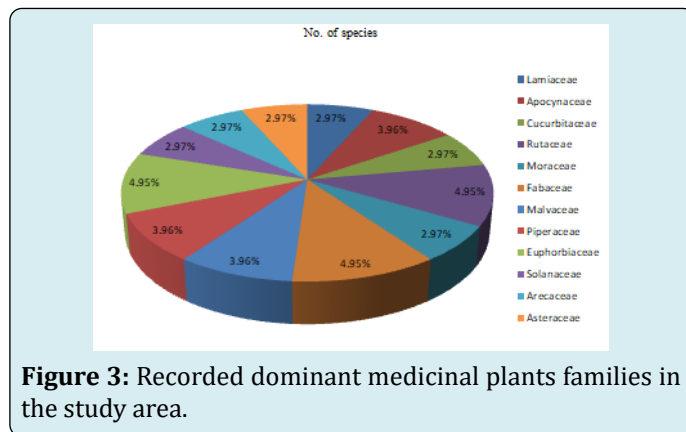


Figure 3: Recorded dominant medicinal plants families in the study area.

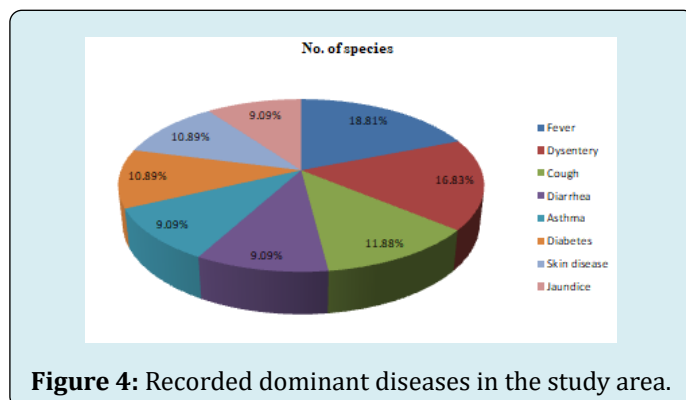


Figure 4: Recorded dominant diseases in the study area.

Summary and Conclusion

The indigenous knowledge about medicinal plants of Lohagara Upazila of Narail district, Bangladesh was reported in this research. Results have shown that 101 medicinal plants used by traditional healers to treat various diseases. The most utilized plant families were Fabaceae and Euphorbiaceae followed by Asteraceae, Amaranthaceae, Apocynaceae, Arecaceae, Cucurbitaceae, Fabaceae, Lamiaceae, Malvaceae, Moraceae, Piperaceae and Rutaceae. The highest proportions of the medicinal plants (38.61%) are herbs followed by trees (33.66%), shrubs (17.82%) and climbers (9.90%). Commonly treated diseases are diabetes, dysentery, headache, eczema, heart disease, high blood pressure, piles, scabies, jaundice, asthma, bronchitis, constipation, cough, chronic fever, chicken fox, dog bite, snake bite, toothache, ulcers, vomiting and wounds. The major threats to medicinal plants and the associated knowledge on these particular plants are agricultural expansions, firewood collections grazing and drought in that order to overcome these problems traditional healers have gone far to get the plants that used for the medication. Despite this fact, traditional healers still depend to a greater extent on naturally growing species, as they believe those species in the wild vegetation are more powerful in the treatment of different ailments and health problems the scarcity of the plantation area for growing the plants in the study area. Further pharmacological and phytochemical research studies are recommended to identify active components in the recorded medicinal plants, and their efficiency to cure the different human diseases.

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