

Medicinal Plants Uses by Local Peoples at Paba Upazila of Rajshahi District, Bangladesh

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Abstract Objectives: The research documented the use of medicinal plants in treating various diseases by the peoples in Paba Upazila of Rajshahi District, Bangladesh. **Methods:** Information on the local uses of medicinal plants was collected using semi-structured interviews with key informants from October 2021 to September 2022 were investigated. **Results:** This paper documents 71 plants species under 66 genera and 42 families have been documented which are used for the treatment of 85 categories diseases. For each species scientific name, local name, family name, habit, part(s) used, diseases and treatment process are provided. **Conclusion:** This important work may be helpful to develop the herbal drug development in future.

Keywords: medicinal plants, local uses, paba upazila, rajshahi, bangladesh

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1. Introduction

The knowledge of medicinal plants has mainly been gathered by the people in the form of tradition and experiences and inherited over the centuries to the future generation. It is extremely important to save this traditional knowledge of biological heritage and explore new resources [1]. The knowledge on traditional medicine has been continuing for years and has been transmitted orally from generation to generation. In our country, the traditional system of medicine plays an important role in health care of rural people for all types of ailments. Nearly 80% of the world populations rely on traditional medicines for primary health care, most of which involve the use of plant extracts [2]. Man's dependence on plant has in no way decreased, yet there are comprehensive documentations of the plants, exploited for their medicinal uses in some parts of the plants such as leaves, stem and root. The decoctions of these plants are used in the treatment of some diseases such as urinary problems, diabetes, asthma, stroke, stomachache, hypertension, diarrhea and wounds [3]. World Health Organization estimates that 70% of populations from many countries are using traditional of folk medicine to cure various ailments [4].

Medicinal plants was carried out in Bangladesh by [5-20] [21-45] [46-60] [61-75] [4] [76-82] [83-88] and [89-91]. The primary objective of this study is to present a database on indigenous knowledge on medicinal plants used for reproductive disease among the local traditional healers in Paba upazila of Rajshahi, Bangladesh.

2. Materials and Methods

2.1. Study Area

Paba is an upazila of Rajshahi District in the Division of Rajshahi, Bangladesh. Paba is located at 24.4417°N 88.6278°E. It has 40,000 households and a total area of 280.42 km². Paba Upazila is bounded by Mohanpur and Tanore Upazilas on the north, Puthia and Durgapur Upazila on the east, Bhagawangola II and Raninagar II CD Blocks, in Murshidabad district, West Bengal, India, across the Ganges/ Padma, and Charghat Upazila, on the south, and Godagari Upazila on the west [92].

2.2. Methodology

The present work is the outcome of an extensive survey in several villages of Paba Upazila of Rajshahi district, Bangladesh undertaken from October 2021 to September 2022 to collect information on the medicinal uses of different plant species. A total of 71 species belonging to 66 genera under 42 families were recorded. Medicinal information was obtained through semi-structured interviews with knowledgeable traditional healers. A total of 154 informants having an age range of 22-73 years were interviewed using the semi-structured interviewed method [93]. Plant parts with either flowers or fruits were collected using traditional herbarium techniques to make voucher specimens for documentation and voucher specimens have been preserved at Herbarium of Rajshahi University.

2.3. Identification

Collected specimens have been examined, studied and identified. Identifications have been confirmed by consulting standard kinds of literature [94] [83] [86]. Nomenclature has been updated following recent literature [84] and [85].

3. Results and Discussion

Medicinal plants was used by the local peoples in Paba Upazila, Rajshahi, Bangladesh was carried out during October 2021 to September 2022. Of 71 plant species under 66 genera and 42 families were recorded. Out of the recorded species, Magnoliopsida is represented by 59 species and Liliopsida is represented by 12 species. Herbs, shrubs, climbers and trees represent the number 35, 15, 6 and 14 respectively. Different plant families with different species were distributed in the area like 4 species belong to the Fabaceae and Apocynaceae families each. Asteraceae is represented by 6 species. Each of Amaranthaceae, Combretaceae, Liliaceae and Euphorbiaceae families were represented by 3 species. Each of Zingiberaceae, Verbenaceae, Cucurbitaceae, Lamiaceae, Myrtaceae, Poaceae, Rutaceae, Apiaceae, Mimosaceae and Acanthaceae families are represented by 2 species. Each of Vitaceae, Moringaceae, Sterculiaceae, Malvaceae, Piperaceae, Oxalidaceae, Bombacaceae, Nyctaginaceae, Boraginaceae, Lythraceae, Arecaceae, Brassicaceae Bromoliaceae, Convolvulaceae, Costaceae, Crassulaceae, Moraceae, Cuscutaceae, Cyperaceae, Gentianaceae, Meliaceae, Menispermaceae, Musaceae, Papaviraceae, Polygonaceae, Ranunculaceae, Asclepiadaceae, Solanaceae and Araceae families are represented by single species (Table 1).

Out of 71 recorded medicinal species, herbs are represented by 50%, shrubs by 21%, climber 9%, trees by 20% species (Figure 1). Various plant parts of different spp. was used as several diseases like root (21.12%), stem (8.45%), whole plant (19.71%), leaf (49.29%), bark (9.85%), leaf stalk (1.40%), Fruit (4.22%), Gum (2.80%), seed (2.81%), petiole (2.81%), tuber (4.22%), rhizome (2.81%), bulb (1.40%) and latex (1.40%) (Figure 2). Out

of the recorded species, Asteraceae (8.45%), Apocynaceae (5.63%) and Fabaceae (5.63%) are dominant medicinal plant families in the study area (Figure 3). Dominant diseases was recorded like fever, diabetes, cough, skin disease, dysentery and hair treatment (Figure 4).

The local people of Paba upazila of Rajshahi continue to rely on medicinal plants used for the treatment of various ailments like Scurvy, Sneezing, Snake bite, Sedative, Sinuses, Skin disease, Stomach pain, Stop bleeding, Stop vomiting, Swelling, Tumor, Tuberculosis, Toothache, Tonsillitis, Throat pain, Traumatic injury, Ulcer, Urinary problem, Weakness, Cough, Constipation, Cooling or astringent, Eye inflammation, Piles, Paralysis, Wound healing Abdominal pain, Acidity, Abortion, Epilepsy, Febrifuge, Fever, Gout, Gonorrhoea, Catarrhal fever, Malarial fever, Hair treatment, Headache, Heart disease, Hemorrhage, Hiccup, Leprosy, Joint pain, Jaundice, Insomnia, Insect bite, Leucoderma, Liver disorder, Lung infection, Male weakness, Measles, Menstrual problem, Mother milk secretion, Ring worm, Rheumatism, Pyorrhea, Pneumonia, Alopecia, Anthelmintic, Anti-oxidant, Blood pressure, Balance diet, Asthma, Arthritis, Anti-inflammatory, Cold, Cholera, Chicken pox, Diabetes, Diarrhea, Dysentery, Dog bite, Diuretic, Digestive problem, Dyspepsia, Eczema, Edema, Blood dysentery, Blotch, Broken limbs, Bronchitis, Burning wounds/sensation, Cancer and other diseases.

The treatment of different diseases was frequently used species like *Rauvolfia serpentina*, *Ricinus communis*, *Terminalia bellerica*, *Saccharum officinarum*, *Tridax procumbens*, *Swertia chirata*, *Heliotropium indicum*, *Hibiscus rosa-sinensis*, *Vitex negundo*, *Ipomoea aquatica*, *Kalanchoe pinnata*, *Lantana camara*, *Leucas aspera*, *Lawsonia inermis*, *Mikania micrantha*, *Mimosa pudica*, *Momordica charantia*, *Moringa oliefera*, *Musa sapientum*, *Enhydra fluctuans*, *Ocimum sanctum*, *Zingiber officinale*, *Oxalis corniculata*, *Phyllanthus emblica*, *Piper betel*, *Polygonum hydropiper*, *Psidium guajava*, *Syzygium cumini*, *Nerium indicum*, *Nigella sativa*, *Tagetes erecta*, *Tamarindus indica*, *Ficus racemosa*, *Terminalia arjuna*, *Terminalia chebula*, *Tinospora cordifolia*, and *Wedelia chinensis*. Similar results of medicinal plant families in the study is in agreement with [95] [96] [55-56] [89] [90] and [97].

Table 1. Documented medicinal plants used by the local people Paba upazila of Rajshahi

Sl.No.	Botanical Name	Bangla Name	Family Name	Used parts	Diseases	Treatment process
01	<i>Abroma augusta</i>	Ulot kambol	Sterculiaceae	Petiole, Seed, Leaf	Weakness Stomach pain Leucorrhoea	Petiole pulp taken internally Crushed seed combined with water used internally Leaf decoction with crushed pepper powder is taken orally
02	<i>Acacia nilotica</i>	Babla	Mimosaceae	Bark, Leaf,	Bronchitis Dysentery Leucoderma	Bark juice is taken internally Capsules are used orally Extraction of leaves used orally
03	<i>Acalypha indica</i>	Muktajhuri	Euphorbiaceae	Leaf	Ringworm Snake bite Child constipation	Leaf paste is taken internally Paste made from young parts is administered externally Leaf juice is used orally
04	<i>Achyranthes aspera</i>	Apang	Amaranthaceae	Stem, Leaf, Root	Jaundice Tonsillitis Traumatic injury Insect bite Urination problem	Leaf paste is taken orally Leaf juice is taken internally Root extract is taken externally Crushed young leaves is taken externally Leaf decoction is taken orally

05	<i>Adhatoda vasica</i>	Basak	Acanthaceae	Whole plant	Cough, Fever, Bleeding piles	Leaf juice is taken internally
06	<i>Aegle marmelos</i>	Bel	Rutaceae	Fruit, Root	Stomachache Constipation Diarrhea Heart disorder	Pieces of young fruit is taken orally Fruit juice is used internally Fruit juice with sugar and milk is taken orally Fresh root paste used internally
07	<i>Allium cepa</i>	Piaj	Liliaceae	Bulb	Cold, Cough and Headache Snake bite and Hair treatment	Warm bulb juice with mustard oil is taken externally Bulb juice is applied externally
08	<i>Allium sativum</i>	Rasun	Liliaceae	Bulb	Cough, Fever, Blood Pressure Scabies and Eczema	Bulb juice is taken internally Bulb juice taken externally
09	<i>Aloe vera</i>	Aloe	Liliaceae	Leaf	Paralysis Viral Jaundice Weakness Skin treatment Hair treatment	Decoction of boiled leaf is used internally Leaf juice is used orally Leaf juice with sugar is taken internally Leaf Paste used is used externally Leaf juice is used externally
10	<i>Amaranthus spinosus</i>	Katakhura	Amaranthaceae	Whole plant	Toothache Dysentery Burning wounds	Plant extract is taken externally. Leaves juice is taken orally Leaf paste is taken externally
11	<i>Amaranthus viridis</i>	Dukkhura	Amaranthaceae	Whole plant	Acidity Leprosy Immunity	Leaf juice is taken internally Whole plant juice is taken orally Plant is used internally
12.	<i>Andrographis paniculata</i>	Kalomegh	Acanthaceae	Leaf	Headache, diarrhea, cholera, fever Lung infection Leprosy Liver disorder	Leaf juice is used orally Leaf juice used internally Leaf paste is applied externally Juice of eaves is taken orally
13.	<i>Areca catechu</i>	Supari	Arecaceae	Seed, Root	Taeniasis Dyspepsia Blood Dysentery Toothache Sore	Seed extract is used orally Young fruit juice is taken orally Seed decoction is taken internally Root powder mixed with dry nut powder is taken Dry fruit powder is applied externally
14.	<i>Argemone mexicana</i>	Sheyalkata	Papaveraceae	Root, Latex	Skin cracks Jaundice Tumors, cancer Malarial fever	Latex is used externally Latex is used internally Root decoction with betel leaves is taken internally
15.	<i>Azadirachta indica</i>	Neem	Meliaceae	Leaf	Chicken pox Jaundice Pyorrhea Skin disease	Leaf paste is taken externally Leaf juice is used orally Decoction of leaf used in gargling to treat sore and pyorrhea Leaf paste mixed with warm water is applied externally
16	<i>Boerhaavia diffusa</i>	Punarnava	Nyctaginaceae	Root, Leaf	Diuretic Asthma Insomnia	Root paste is applied internally Roots and leaves extract is used orally Tender leaf paste is used internally
17.	<i>Bombax ceiba</i>	Shimul	Bombacaceae	Gum, Root	Burning sensation Male weakness Rheumatism	Gum paste is applied externally Tender root decoction is taken internally Grinding of root bark is used orally
18.	<i>Brassica napus</i>	Sorisha	Brassicaceae	Seed	Hair treatment Insomnia Skin crack Gout Cough and Neuralgic	Seed oil is slightly heated and applied externally Oil obtained for seed is applied to the scalp Oil obtained from seed is applied externally Seed paste is taken externally Warm seed oil is taken externally.
19	<i>Cajanus cajan</i>	Arhar	Fabaceae	Leaf, Seed	Piles and mouth disease Jaundice and Pneumonia Mother milk secretion	Leaf paste taken externally Juice of leaf is taken orally Decoction of seeds and leaf is used orally
20.	<i>Calotropis procera</i>	Akando	Asclepiadaceae	Leaf	Arthritis Paralyses Rheumatism	Warm leaf with salt is taken externally arming Warm leaf paste is applied externally Mustered oil and latex are taken
21.	<i>Carissa carandus</i>	Koromcha	Apocynaceae	Fruit, Root bark	Diabetes Anti helminthic and wound healing	Ripe fruit and root bark is used internally Decoction of root bark is used orally

22.	<i>Catharanthus roseus</i>	Nayantara	Apocynaceae	Whole plant	Child Leukemia Anti Tumour and Anti Cancer Diabetes and Blood pressure	Whole plant juice is taken orally Alkaloids obtained from leaves and stems is used orally Juice of leaves is used orally
23.	<i>Centella asiatica</i>	Thankuni	Apiaceae	Whole plant	Dysentery and stomach pain, Tuberculosis	Whole plant paste is used orally Whole plant juice is taken internally
24.	<i>Cissus quadrangularis</i>	Harjora	Vitaceae	Whole plant	Scurvy and irregular menstruation Asthma Stomach pain Indigestion Piles Broken limbs	Whole plant juice is taken Stem Paste made from stem is taken orally Leaf juice is taken internally Leaf juice is consumed orally Whole plant paste is applied externally
25.	<i>Citrus aurantifolia</i>	Lebu	Rutaceae	Fruit	Catarrhal fever Increase digestive power and appetite Skin irritation and nausea Balance diet	Honey with fruit juice is taken orally Fruit juice is taken internally Juice of fruits are taken orally Fruit juice with warm water is taken internally
26.	<i>Clerodendrum viscosum</i>	Bhat	Verbenaceae	Leaf, Root	Tumors, Asthma and skin problem Hair treatment Anti helminthic	Root and leaf paste taken externally Paste of leaves is used externally Juice of young leaf is taken
27.	<i>Clitoria ternatea</i>	Oporajita	Fabaceae	Root, Leaf	Throat pain Swellings Tuberculosis Headache	Paste of leaves is applied externally Paste of leaves is administered externally Decoction of root is used orally Paste of leaves is used externally
28.	<i>Coccinia grandis</i>	Telakucha	Cucurbitaceae	Leaf, Fruit	Diabetes Hypertension Fever and vomiting Insomnia	Fruits and leaves are used orally Leaf juice is taken orally Crushed leaves juice with water is taken Paste made from cooked leaves are used
29.	<i>Colocasia esculenta</i>	Kochu	Araceae	Leaf, Petiole	Stop bleeding Tumors and cancer	Petioles juice is used externally Juice obtained from leaf is used
30.	<i>Coriandrum sativum</i>	Dhone	Apiaceae	Seed, Whole plant	Asthma Sneezing Cold and Fever	Whole plant extract is used orally Seed juice mixed with ginger, jeera, pepper and milk is taken orally Whole plant juice is taken internally
31.	<i>Costus speciosus</i>	Buno Ada	Costaceae	RhizomeStem, Tuber	Menstrual disorder and urinary inflammation Dysentery and other Digestive problem Eye inflammation	Rhizome paste is administered internally Chutney made from the brunt tuber, sugar, and tamarind used internally Rhizome juice mixed with sugar is taken
32.	<i>Curcuma longa</i>	Holud	Zingiberaceae	RhizomeFlower	Eczema Cold fever Dysentery Gonorrhea Gastric problem Stop bleeding and wounds	Rhizome paste is used externally Rhizome juice is taken orally Mustard oil, rhizome with rice and salt is taken Paste of flower is externally Chewing rhizome with salt is used Paste rhizome is externally
33.	<i>Cuscuta reflexa</i>	Sarnolata	Cuscutaceae	Stem, Leaf	Constipation, liver disorder, and antioxidant	Stem and leaf juice is taken orally
34.	<i>Cynodon dactylon</i>	Durbaghas	Poaceae	Whole plant	Control bleeding	Whole plant paste is taken externally
35.	<i>Cyperus rotundus</i>	Chapra-ghas	Cyperaceae	Tuber, Root	Fever Diarrhea Wounds and Sores	Decoction of root is used orally Crushed root is taken internally Macerated root paste is taken externally
36.	<i>Dalbergia sissoo</i>	Sisso	Fabaceae	Leaf, Bark	Hemorrhage Gonorrhea	Dry bark powder is taken externally Leaf decoction is used orally

					Dysentery	Decoction of leaf used orally
37.	<i>Datura metel</i>	Dhutra	Solanaceae	Leaf,, Flower, Fruit	Rheumatic swelling Ear pain and asthma Skin disease	Paste of leaf is used externally Leaf smoked to relieve spasmodic asthma and used externally for earache Paste of leaf with neem is used externally
38.	<i>Eclipta alba</i>	Kasra	Asteraceae	Whole plant	Diarrhea Constipation Hair treatment	Whole plant juice with sugar/honey is taken internally Whole plant juice is taken Paste made from whole plant is used externally
39.	<i>Euphorbia hirta</i>	Dudhiya	Euphorbiaceae	Whole plant	Dysentery Bronchitis Edemas	Paste of whole plant is taken internally Whole plant grinding decoction is taken orally Decoction of whole plant is taken
40.	<i>Enhydra fluctuans</i>	Helenchra	Asteraceae	Whole plant	Fever	Whole plant cooked is taken internally
41.	<i>Ficus racemosa</i>	Dumur	Moraceae	Fruit, Gum	Dry cough Asthma Diabetes	Fruits extract or vegetables is taken Young fruits mixed with honey is taken internally Raw fruit powder taken orally
42.	<i>Heliotropium indicum</i>	Hatisur	Boraginaceae	Leaves	Dog bite Insects bite	Paste /macerated leaf is taken externally Juice obtained from with same portion of castor oil is applied externally
43.	<i>Hibiscus rosa-sinensis</i>	Joba	Malvaceae	Flower	Burning injury Menstrual disorders Soothing and antiseptic Treatment of hair	Paste of flower is applied externally Paste made from flower with water is taken orally Crushed buds with water to make juice is taken internally Paste of flower is used externally
44.	<i>Ipomoea aquatia</i>	Kolmishak	Convolvulaceae	Whole plant	Jaundice and bronchitis Leprosy and fever	Leaf paste with cold water is taken orally Whole plant is taken internally
45.	<i>Kalanchoe pinnata</i>	Pathorkuchi	Crassulaceae	Leaf	Stop Bleeding Blood dysentery Stomachic	Paste of leaf is taken externally Juice of leaf is taken orally Salt with smashed leaves is used orally
46.	<i>Lantana camara</i>	Chotra	Verbenaceae	Leaf	Aches and pains Measles Tetanus, Rheumatism and malaria	Turmeric, salt with crushed leaves is taken orally Leaf juice is taken internally
47.	<i>Leucas aspera</i>	Setodron	Lamiaceae	Leaf, Root	Snake-bite Rheumatism Stomachic Psoriasis and other skin disease Antihelminthic	Paste or macerated leaves is taken orally and macerated roots is used externally Leaf juice is used orally Leaf decoction mixed in a small amount of rock salt are applied internally Leaf paste is used orally Cooked plant paste is used internally
48.	<i>Lawsonia inermis</i>	Mehedi	Lythraceae	Leaf	Skin care Treatment of hair	Solution of leaf is taken externally Paste of leaf is taken externally
49.	<i>Mikania micarantha</i>	Asamlota	Asteraceae	Leaf	Stop Bleeding, Skin care	Paste of leaf is taken externally
50.	<i>Mimosa pudica</i>	Lajjaboti	Mimosaceae	Root, Leaf	Diarrhea, Piles Snake bites Muscular pain	Root juice is taken internally Raw milk with soak the plant's roots is applied orally Leaf juice is taken orally
51.	<i>Moringa oleifera</i>	Sajna	Moringaceae	Leaf, Root, Fruit, Seed	Blood pressure Wormicidal, Abortion Fever and abdomen pain Rheumatism Diabetes Cold-cough Anti-inflammatory	Leaves cooked as vegetables is eaten Paste of root bark with water used orally Decoction of root are given orally Seed oil is taken internally Dried leaves powder is taken orally Leaf Extract of leaf is taken internally Solution of leaf is given orally
52.	<i>Nerium indicum</i>	Korobi	Apocynaceae	Leaf, Root Bark	Ulcers Joint pain Insect bite Swellings	Root bark solution is used orally Paste of root bark is applied externally Soaked fresh leaves is used externally Extract of leaves with hot water is taken externally

53.	<i>Nigella sativa</i>	Kalojira	Ranunculaceae	Seed	High blood pressure Asthma Diabetes	Directly seeds are taken orally Seed is taken internally
54.	<i>Ocimum sanctum</i>	Tulsi	Lamiaceae	Leaf	Cough Bronchitis and cold Gastric disorder and ringworm	Leaf extract is taken internally Orally Warm leaf juice is taken Juice of leaf is used internally
55.	<i>Oxalis corniculata</i>	Amrul	Oxalidaceae	Leaf	Stomach pain Scurvy	Leaf solution mixed with water is taken orally Leaves juice is taken internally
56.	<i>Piper betel</i>	Pan	Piperaceae	Leaf	Phlegm Louse removal Toothache and gum disease	Paste of leaf is taken Leaf extracts is applied orally
57.	<i>Polygonum hydropiper</i>	Biskatali	Polygonaceae	Whole plant	Liver illness and sore Epilepsy Dysentery	Whole plant juice is taken internally Chewing whole plant is taken internally Mature seed mixed with water is used taken orally
58.	<i>Psidium guajava</i>	Peyara	Myrtaceae	Leaf, Bark	Diarrhea Mouth cleanser Dysentery	Extract of leaf and stem bark are taken Young Tender leaf is used Juice of root is taken orally
59.	<i>Rauvolfia serpentina</i>	Sarpogandha	Apocynaceae	Root	Blood pressure, sedative, febrifuge, dysentery	Root juice is taken internally
60.	<i>Ricinus communis</i>	Bhenna	Euphorbiaceae	Leaf, Seed,	Jaundice Dysentery Constipation	Leaf juice is taken orally Fresh leaf juice with sugar is taken Oil obtained from seed is taken orally
61.	<i>Saccharum officinarum</i>	Kushar	Poaceae	Stem	Jaundice	Stem juice is taken internally
62.	<i>Syzygium cumini</i>	Jam	Myrtaceae	Bark, Seed, Fruit	Asthma Diabetes	Fruit is taken and bark juice is taken internally Seed powder mixed with cold water is taken orally
63.	<i>Tagetes erecta</i>	Gendaphul	Asteraceae	Whole plant	Bleeding Blotch Tuberculosis Dysentery	Paste of leaf is taken externally Crushed leaf paste is used externally Leaf dust mixed with goat milk is taken orally Juice of leaf with sugar is taken internally
64.	<i>Tamarindus indica</i>	Tetul	Fabaceae	Fruit, Seed, Leaf	Fever, Gastric Dyspepsia Blood Dysentery Mouth disease	Fruit pulp is used internally Crushed seed is taken orally Fresh leaf juice taken internally Decoction of stem and bark is used orally
65.	<i>Terminalia arjuna</i>	Arjun	Combretaceae	Bark	Blood pressure, Heart disease	Juice of stem bark is used internally
66.	<i>Terminalia bellerica</i>	Bohera	Combretaceae	Green fruit	Cough	Extract obtained from young fruit is taken internally
67.	<i>Terminalia chebula</i>	Horitaki	Combretaceae	Seed, Fruit	Vomiting Dysentery	Honey with seed powder is taken orally Powder of dry fruit mixed with water in used orally
68.	<i>Tinospora cordifolia</i>	Guloncho	Menispermaceae	Stem, Leaf stalk	Discharge of semen, Gonorrhea Diabetes Jaundice	Juice extracted from young stems is taken internally Crushed leaf stalk with neem paste is taken Leaf juice is taken internally
69.	<i>Tridax procumbens</i>	Tridhara	Asteraceae	Leaf	Dysentery and Diarrhea Bronchitis Bleeding	Leaf decoction is taken internally Leaf extract combined with water is taken orally Leaf power is applied externally
70.	<i>Wedelia chinensis</i>	Mohavringaraj	Asteraceae	Leaf	Alopecia, hair disease Stop vomiting	Leaf paste is taken externally Leaf juice with salt is taken internally
71.	<i>Zingiber officinale</i>	Ada	Zingiberaceae	Rhizome	Indigestion, Cold-cough, Catarrhal fever, and Gout	Rhizome powder with hot water is taken internally

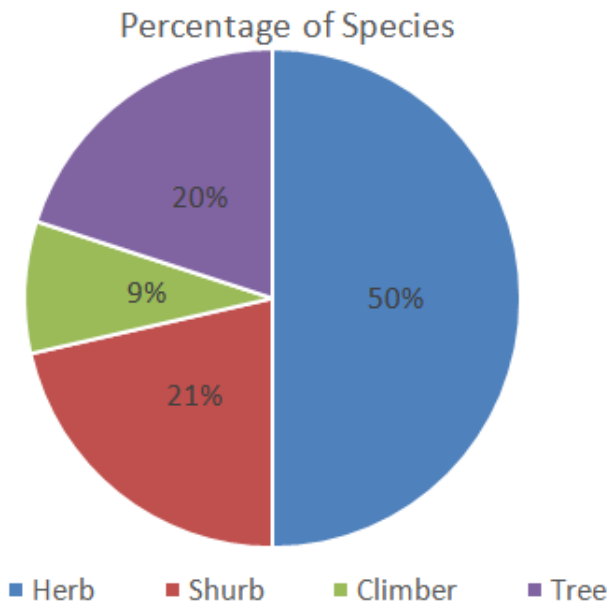


Figure 1. Plant habit in the study area

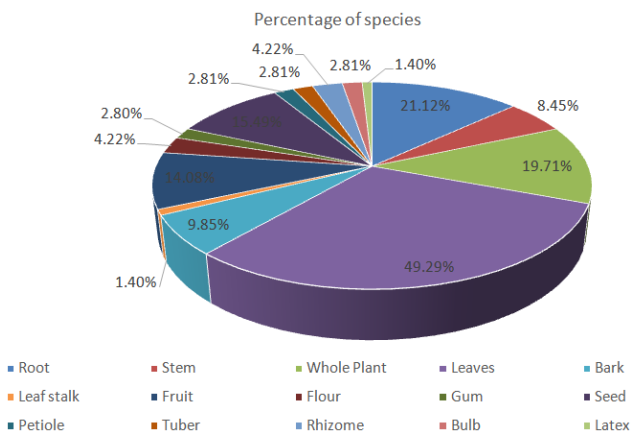


Figure 2. Plant parts used as medicinal purposes

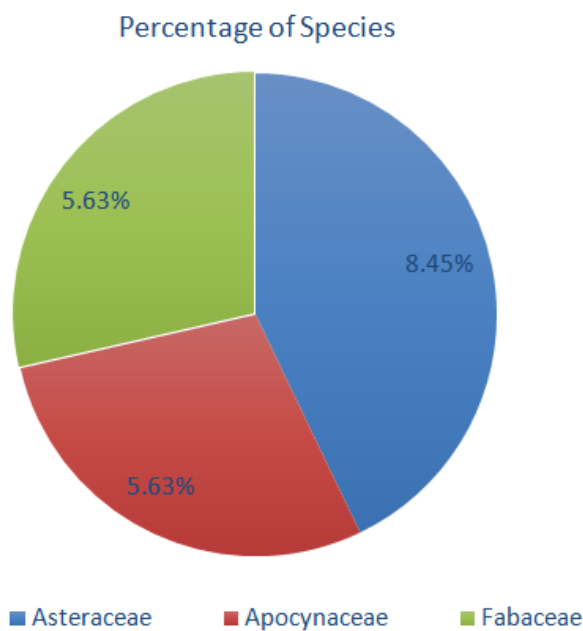


Figure 3. Recorded Dominant Families in the study area

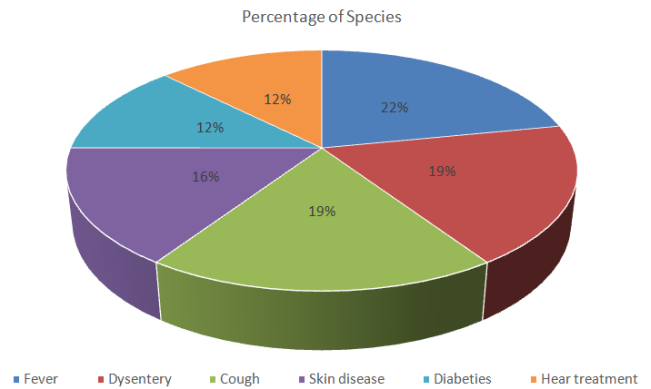


Figure 4. Recorded dominant diseases

4. Conclusion

Traditional medicinal plants was used by the local peoples in Paba Upazila, Rajshahi, Bangladesh was carried out during October 2021 to September 2022. A total of 71 medicinal plant species belonging to 66 genera and 42 families were recorded. Folk medicinal knowledge could be an advantageous practice for human welfare. Quite knowledgeable of native healers are about the healing characteristics and applications of their surrounding natural resources. The current studies attempted to document and examine the folk medicinal information held by the people who lived in the research area. The information recorded from the field survey and preliminary analysis in the present research provides basic understanding on the rationality of herbal remedies. Thus, knowledge of potent medicinal value of plants would help to use more appropriately.

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References

- [1] Ahmed, S.M., Uddin, M, Belal, Rahman , M. Tito, M. (2007). Int. J. For. Usuf. Mngt. 8(2):50-63.
- [2] Sandhya, T., Lathika, K.M., Pandey, B.N., Mishra, K.P. (2006). Cancer letters. 231(02):206-214.
- [3] Balick, M.J. (1994). Ethnobotany, drug development and biodiversity conservation-exploring the linkages. In: Chadwick DJ, Marsh J (eds) Ethnobotany and the Search for new drugs (Ciba Foundation Symposium 185). Wiley Chichester, pp. 4-18.
- [4] WHO (World Health Organisation). (1991). "Guideline for Assessment of Herbal Medicines" Programme on Traditional. WHO, Gieneva, pp 56-91.
- [5] Rahman, A.H.M.M., Anisuzzaman, M, Haider, S.A, Ahmed, F, Islam, A.K.M.R., Naderuzzaman, A.T.M. (2008). Study of Medicinal Plants in the Graveyards of Rajshahi City. *Research Journal of Agriculture and Biological Sciences*. 4(1): 70-74.
- [6] Rahman, A.H.M.M, Kabir, E.Z.M.F, Sima, S.N, Sultana, R.S, Nasiruddin, M, Naderuzzaman, A.T.M. (2010) Study of an Ethnobotany at the Village Dohanagar, Naogaon. *Journal of Applied Sciences Research*. 6(9): 1466-1473.
- [7] Rahman, A.H.M.M., Gulsan, J.E, Alam, M.S., Ahmad, S., Naderuzzaman, A.T.M., Islam, A.K.M.R. (2012). An ethnobotanical Portrait of a Village: Koikuri, Dinajpur with

- Reference to Medicinal Plants. *International Journal of Biosciences*. 2(7): 1-10.
- [8] Rahman, A.H.M.M. (2013). An Ethno-botanical investigation on Asteraceae family at Rajshahi, Bangladesh. *Academia Journal of Medicinal Plants*. 1(5): 092-100.
- [9] Rahman, A.H.M.M. (2013). Assessment of Angiosperm Weeds of Rajshahi, Bangladesh with emphasis on medicinal plants. *Research in Plant Sciences*. 1(3): 62-67.
- [10] Rahman, A.H.M.M. (2013). Ethno-botanical Survey of Traditional Medicine Practice for the Treatment of Cough, Diabetes, Diarrhea, Dysentery and Fever of Santals at Abdullahpur Village under Akkelpur Upazilla of Joypurhat District, Bangladesh. *Biomedicine and Biotechnology*. 1(2): 27-30.
- [11] Rahman, A.H.M.M. (2013). Ethno-medicinal investigation on ethnic community in the northern region of Bangladesh. *American Journal of Life Sciences*. 1(2): 77-81.
- [12] Rahman, A.H.M.M. (2013). Ethno-medico-botanical investigation on cucurbits of the Rajshahi Division, Bangladesh. *Journal of Medicinal Plants Studies*. 1(3): 118-125.
- [13] Rahman, A.H.M.M. (2013). Graveyard angiosperm diversity of Rajshahi city, Bangladesh with emphasis on medicinal plants. *American Journal of Life Sciences*. 1(3): 98-104.
- [14] Rahman, A.H.M.M. (2013). Medico-botanical study of commonly used angiosperm weeds of Rajshahi, Bangladesh. *Wudpecker Journal of Medicinal Plants*. 2(3): 044-052.
- [15] Rahman, A.H.M.M. (2013). Medico-botanical study of the plants found in the Rajshahi district of Bangladesh. *Prudence Journal of Medicinal Plants Research*. 1(1): 1-8.
- [16] Rahman, A.H.M.M. (2013). Medico-Ethnobotany: A study on the tribal people of Rajshahi Division, Bangladesh. *Peak Journal of Medicinal Plants Research*. 1(1): 1-8.
- [17] Rahman, A.H.M.M. (2013). Traditional Medicinal Plants Used in the Treatment of different Skin diseases of Santals at Abdullapur Village under Akkelpur Upazilla of Joypurhat district, Bangladesh. *Biomedicine and Biotechnology*. 1(2): 17-20.
- [18] Rahman, A.H.M.M., Khanom ,A. (2013). Taxonomic and Ethno-Medicinal Study of Species from Moraceae (Mulberry) Family in Bangladesh Flora. *Research in Plant Sciences*. 1(3): 53-57.
- [19] Rahman, A.H.M.M., Akter, M. (2013). Taxonomy and Medicinal Uses of Euphorbiaceae (Spurge) Family of Rajshahi, Bangladesh. *Research in Plant Sciences*. 1(3): 74-80.
- [20] Rahman, A.H.M.M., Sultana, N., Islam, A.K.M.R., Zaman, A.T.M.N. (2013). Study of Medical Ethno-botany of traditional medicinal plants used by local people at the village Genda under Savar Upazilla of district Dhaka, Bangladesh. *Journal of Medicinal Plants Studies*. 1(5): 72-86.
- [21] Rahman, A.H.M.M., Kabir, E.Z.M.F., Islam, A.K.M.R., Zaman, A.T.M.N. (2013). Medico-botanical investigation by the tribal people of Naogaon district, Bangladesh. *Journal of Medicinal Plants Studies*. 1(4): 136-147.
- [22] Rahman, A.H.M.M., Nitu, S.K., Ferdows, Z., Islam ,A.K.M.R. (2013). Medico-botany on herbaceous plants of Rajshahi, Bangladesh. *American Journal of Life Sciences*. 1(3): 136-144.
- [23] Rahman, A.H.M.M., Biswas, M.C., Islam, A.K.M.R., Zaman, A.T.M.N. (2013). Assessment of Traditional Medicinal Plants Used by Local People of Monirampur Thana under Jessore District of Bangladesh. *Wudpecker Journal of Medicinal Plants*. 2013; 2(6): 099-109.
- [24] Rahman, A.H.M.M. (2014). Ethno-gynecological study of traditional medicinal plants used by Santals of Joypurhat district, Bangladesh. *Biomedicine and Biotechnology*. 2(1): 10-13.
- [25] Rahman, A.H.M.M., Parvin, M.I.A. (2014). Study of Medicinal Uses on Fabaceae Family at Rajshahi, Bangladesh. *Research in Plant Sciences*. 2(1): 6-8.
- [26] Rahman, A.H.M.M., Gulshana, M.I.A. (2014). Taxonomy and Medicinal Uses on Amaranthaceae Family of Rajshahi, Bangladesh. *Applied Ecology and Environmental Sciences*. 2(2): 54-59.
- [27] Rahman, A.H.M.M., Rahman, M.M. (2014). An Enumeration of Angiosperm weeds in the Paddy field of Rajshahi, Bangladesh with emphasis on medicinal Plants. *Journal of Applied Science And Research*. 2(2): 36-42.
- [28] Rahman, A.H.M.M., Hossain, M.M., Islam, A.K.M.R. (2014). Taxonomy and Medicinal Uses of Angiosperm weeds in the wheat field of Rajshahi, Bangladesh. *Frontiers of Biological and Life Sciences*. 2(1): 8-11.
- [29] Rahman, A.H.M.M., Afsana, M.W., Islam, A.K.M.R. (2014). Taxonomy and Medicinal Uses on Acanthaceae Family of Rajshahi, Bangladesh. *Journal of Applied Science And Research*. 2(1): 82-93.
- [30] Rahman, A.H.M.M., Rojoni Gondha. (2014). Taxonomy and Traditional Medicine Practices on Malvaceae (Mallow Family) of Rajshahi, Bangladesh. *Open Journal of Botany*. 1(2): 19-24.
- [31] Rahman, A.H.M.M., Jahan-E-Gulsan, S.M., Naderuzzaman, A.T.M. (2014). Ethno-Gynecological Disorders of Folk Medicinal Plants Used by Santhals of Dinajpur District, Bangladesh. *Frontiers of Biological & Life Sciences*. 2(3): 62-66.
- [32] Uddin, K., Rahman, A.H.M.M., Islam, A.K.M.R. (2014). Taxonomy and Traditional Medicine Practices of Polygonaceae (Smartweed) Family at Rajshahi, Bangladesh. *International Journal of Advanced Research*. 2(11): 459-469.
- [33] Rahman, A.H.M.M. (2014). Ethno-medicinal Practices for the Treatment of Asthma, Diuretic, Jaundice, Piles, Rheumatism and Vomiting at the Village Abdullahpur under Akkelpur Upazilla of Joypurhat District, Bangladesh. *International Journal of Engineering and Applied Sciences*. 2014; 1(2): 4-8.
- [34] Rahman, A.H.M.M. (2015). Traditional Medicinal Plants in the treatment of Important Human Diseases of Joypurhat District, Bangladesh. *Journal of Biological Pharmaceutical And Chemical Research*. 2(1): 21-29.
- [35] Rahman, A.H.M.M. (2015). Ethno-medicinal Survey of Angiosperm Plants Used by Santal Tribe of Joypurhat District, Bangladesh. *International Journal of Advanced Research*. 3(5): 990-1001.
- [36] Rahman, A.H.M.M., Akter, S., Rani, R., Islam, A.K.M.R. (2015). Taxonomic Study of Leafy Vegetables at Santahar Pouroshova of District Bogra, Bangladesh with Emphasis on Medicinal Plants. *International Journal of Advanced Research*. 3(5): 1019-1036.
- [37] Rahman, A.H.M.M., Debnath, A. (2015). Ethno-botanical Study at the Village Pondit Para under Palash Upazila of Narsingdi District, Bangladesh. *International Journal of Advanced Research*. 3(5): 1037-1052.
- [38] Rahman, A.H.M.M. (2015). Ethno-botanical Study of Anti-Diabetic Medicinal Plants Used by the Santal Tribe of Joypurhat District, Bangladesh. *International Journal of Research in Pharmacy and Biosciences*. 2(5): 19-26.
- [39] Rahman, A.H.M.M., Keya, M.A. (2015). Traditional Medicinal Plants Used by local people at the village Sabgram under Sadar Upazila of Bogra district, Bangladesh. *Research in Plant Sciences*. 3(2): 31-37.
- [40] Rahman, A.H.M.M., Zaman, R. (2015). Taxonomy and Traditional Medicinal Plant Species of Myrtaceae (Myrtle) Family at Rajshahi District, Bangladesh. *International Journal of Advanced Research*. 3(10): 1057-1066.
- [41] Rahman, A.H.M.M., Jamila, M. (2015). An ethnoveterinary survey of Traditional Medicinal Plants Used by the Santal tribe at Jamtala Village under Sadar Upazila of Capai Nawabganj District, Bangladesh. *Acta Velit*. 1(3): 54-69.
- [42] Rahman, A.H.M.M., Sarker, A.K. (2015). Investigation of Medicinal Plants at Katakhal Pouroshova of Rajshahi District, Bangladesh and their Conservation Management. *Applied Ecology and Environmental Sciences*. 3(6): 184-192.
- [43] Rahman, A.H.M.M., Akter, M. (2015). Taxonomy and Traditional Medicinal Uses of Apocynaceae (Dogbane) Family of Rajshahi District, Bangladesh. *Research & Reviews: Journal of Botanical Sciences*. 4(4): 1-12.
- [44] Rahman, A.H.M.M., Jamila, M. (2016). Angiosperm Diversity at Jamtala Village of Chapai Nawabganj District, Bangladesh with Emphasis on Medicinal Plants. *Research in Plant Sciences*. 4(1): 1-9.
- [45] Roy, D., Rahman, A.H.M.M. (2016). Systematic Study and Medicinal Uses of Rutaceae family of Rajshahi District, Bangladesh. *Plant Environment Development*. 5(1): 26-32.
- [46] Ismail, M., Rahman, A.H.M.M. (2016). Taxonomic Study and Traditional Medicinal Practices on Important Angiosperm Plant Species in and around Rajshahi Metropolitan City. *International Journal of Botany Studies*. 1(3): 33-39.
- [47] Sultana, R., Rahman, A.H.M.M. (2016). Convolvulaceae: A Taxonomically and Medicinally Important Morning Glory Family. *International Journal of Botany Studies*. 1(3): 47-52.
- [48] Jamila, M., Islam, M.J., Rahman, A.H.M.M. (2016). Folk Medicine Practices for the treatment of Abortion, Body weakness, Bronchitis, Burning sensation, Leprosy and Gout of Santal Tribal

- Practitioners at Jamtala Village under Sadar Upazila of Chapai Nawabganj District, Bangladesh. *International Journal of Advanced Research*. 4(6): 587-596.
- [49] Nahar, J., Kona, S., Rani, R., Rahman, A.H.M.M., Islam, A.K.M.R. (2016). Indigenous Medicinal Plants Used by the Local People at Sadar Upazila of Naogaon District, Bangladesh. *International Journal of Advanced Research*. 4(6): 1100-1113.
- [50] Jamila, M., Rahman, A.H.M.M. (2016). Traditional Medicine Practices for the treatment of Blood pressure, Body pain, Gastritis, Gonorrhea, Stomachic, Snake bite and Urinary problems of Santal Tribal Practitioners at the Village Jamtala of Chapai Nawabganj District, Bangladesh. *Journal of Progressive Research in Biology*. 2(2): 99-107.
- [51] Islam, M.J., Rahman, A.H.M.M. (2016). An Assessment of the family Asteraceae at Shadullapur Upazila of Gaibandha District, Bangladesh with Particular Reference to Medicinal Plants. *Journal of Progressive Research in Biology*. 2(2): 108-118.
- [52] Jamila, M., Rahman, A.H.M.M. (2016). Ethnobotanical Study of Traditional Medicinal Plants Used by the Santal Tribal Practitioners at the Village Jamtala of Chapai Nawabganj District, Bangladesh. *Journal of Progressive Research in Biology*. 3(1): 142-159.
- [53] Roy, T.R., Sultana, R.S., Rahman, A.H.M.M. (2016). Taxonomic study and Medicinal Uses of Verbenaceae Family of Rajshahi District, Bangladesh. *Journal of Progressive Research in Biology*. 3(1): 160-172.
- [54] Kona, S., Rahman, A.H.M.M. (2016). Inventory of Medicinal Plants at Mahadebpur Upazila of Naogaon District, Bangladesh. *Applied Ecology and Environmental Sciences*. 4(3): 75-83.
- [55] Jamila, M., Rahman, A.H.M.M. (2016). A Survey of Traditional Medicinal Knowledge for the Treatment of Asthma, Cold, Cough, Fever, Jaundice and Rheumatism of Santal Tribal Practitioners of Chapai Nawabganj District, Bangladesh. *Discovery*. 52(251): 2068-2080.
- [56] Jamila, M., Rahman, A.H.M.M. (2016). Documentation of Indigenous Knowledge for the Treatment of Diarrhea, Diabetes, Dysentery, Eczema, Liver complaints, Heart and Menstrual diseases at Jamtala Village of Chapai Nawabganj District, Bangladesh. *Discovery*. 52(252): 2339-2351.
- [57] Nahar, J., Rahman, A.H.M.M. (2016). Floristic Diversity of Naogaon Sadar, Bangladesh with Special Reference to Medicinal Plants. *Discovery*. 52(252): 2352-2368.
- [58] Debnath, A., Rahman, A.H.M.M. (2017). A Checklist of Angiosperm Taxa at the Village Pandit Para under Palash Upazila of Narsingdi District, Bangladesh with Special Importance to Medicinal Plants. *Species*. 18(58): 23-41.
- [59] Islam, M.H., Rahman, A.H.M.M. (2017). Folk Medicine as Practiced in Bagha Upazila of Rajshahi District, Bangladesh. *Plant Environment Development*. 6(1): 13-24.
- [60] Keya, M.A., Rahman, A.H.M.M. (2017). Angiosperm Diversity at the Village Sabgram of Bogra, Bangladesh with Emphasis on Medicinal Plants. *American Journal of Plant Biology*. 2(1): 25-34.
- [61] Yasmin F, Rahman AHMM. (2017). Ethnomedicinal Plants Used by the Santal Tribal Practitioners at Sadar Upazila of Joypurhat District, Bangladesh. *Indian Journal of Science*. 24(93): 435-453.
- [62] Lipi, J.N., Rahman, A.H.M.M. (2017). Medicinal Plants and Formulations of Folk Medicinal Practitioners of Boda Upazila of Panchagarh District, Bangladesh. *Discovery*. 53(261): 472-487.
- [63] Sultana, R., Rahman, A.H.M.M. (2017). Documentation of Medicinal Plants at the Village Kholabaria of Natore District, Bangladesh. *Academic Journal of Life Sciences*. 3(9): 52-78.
- [64] Khatun, M.M., Rahman, A.H.M.M. (2018). Medicinal Plants Used by the Local People at the Village Pania under Baghmara Upazila of Rajshahi District, Bangladesh. *Discovery*. 54(266): 60-71.
- [65] Islam, M.T., Rahman, A.H.M.M. (2018). Ethnoveterinary Knowledge and Practices at Tanore Upazila of Rajshahi District, Bangladesh. *Australian Journal of Science and Technology*. 2(1): 112-117.
- [66] Khatun, M.M., Rahman, A.H.M.M. (2018). Traditional Knowledge of Medicinal Plants Used by the Local People in Bagmara Upazila of Rajshahi District, Bangladesh. *Discovery Nature*. 12: 5-31.
- [67] Khatun, M.A., Rahman, A.H.M.M. (2018). Angiosperm Weeds Diversity and Medicinal Uses in Seven Selected Maize Fields at Puthia Upazila of Rajshahi District, Bangladesh. *Plant Environment Development*. 7(1): 1-9.
- [68] Zahra, F., Rahman, A.H.M.M. (2018). Medicinal Uses of Angiosperm Weeds in and around Rajshahi Metropolitan City of Bangladesh. *Science & Technology*. 4: 52-70.
- [69] Mojumdar, P., Rahman, A.H.M.M. (2018). Study of Medicinal Leafy Vegetables in the Rajshahi District of Bangladesh. *Discovery*. 54(270): 221-230.
- [70] Islam, M.T., Rahman, A.H.M.M. (2018). Folk medicinal plants used by the Santal tribal practitioners against diarrhea and dysentery in Tanore Upazila of Rajshahi District, Bangladesh. *International Journal of Pharmacognosy*. 5(6): 360-363.
- [71] Khatun, M.R., Rahman, A.H.M.M. (2019). Ethnomedicinal Uses of Plants by Santal Tribal Peoples at Nawabganj Upazila of Dinajpur District, Bangladesh. *Bangladesh Journal of Plant Taxonomy*. 26(1): 117-126.
- [72] Islam, A.T.M.R., Das, S.K., Alam, M.F., Rahman, A.H.M.M. (2019). Documentation of Wild Edible Minor Fruits Used by the Local People of Barishal, Bangladesh with Emphasis on Traditional Medicinal Values. *Journal of Bio-Sciences*. 27: 69-81.
- [73] Rahman, A.H.M.M., Khatun, M.A. (2020). Leafy Vegetables in Chapai Nawabganj District of Bangladesh Focusing on Medicinal Value. *Bangladesh Journal of Plant Taxonomy*. 27(2): 359-375.
- [74] Rahman, A.H.M.M., Asha, N.A. (2021). A Survey of Medicinal Plants Used by Folk Medicinal Practitioners in Daulatpur Upazila of Kushtia District, Bangladesh. *Research in Plant Sciences*. 9(1): 1-6.
- [75] Khatun, M.H, Rahman, A.H.M.M. (2021). Traditional Knowledge and Formulation of Medicinal Plants Used By the Herbal Practitioners in Puthia Upazila of Rajshahi District, Bangladesh" *Sumerianz Journal of Biotechnology*. 4(1): 22-45.
- [76] Afrin, S, Rahman, A.H.M.M. (2021). Medicinal Plants Used by Local Kavirajes in Sarishabari Upazila of Jamalpur District, Bangladesh. *Discovery*. 57(303): 198-224.
- [77] Rahman, A.H.M.M. (2021). Folk Medicinal plants Used by Herbal Practitioners in and around Rajshahi Metropolitan City, Bangladesh. *Journal of Botanical Research*. 3(2): 20-30
- [78] Easmin, MF, Faria LA, Rony Rani R, Rahman AHMM. (2021). Asteraceae: A Taxonomically and Medicinally Important Sunflower Family. *American International Journal of Biology and Life Sciences*. 3(1):1-17.
- [79] Rahman, A.H.M.M., Debnath, A. (2014). Taxonomy and Ethnobotany of Palash Upazila of Narsingdi, Bangladesh. LAP Lambert Academic Publishing, Germany.
- [80] Rahman, A.H.M.M., Jamila, M. (2015). Ethnobotanical Study of Chapai Nawabganj District, Bangladesh. LAP Lambert Academic Publishing, Germany.
- [81] Rahman, A.H.M.M., Sarker, A.K. (2016). Medicinal Plants of Katakhal Pouroshova of Rajshahi, Bangladesh. LAP Lambert Academic Publishing, Germany.
- [82] Rahman, A.H.M.M., Khatun, M.M. (2018). Medicinal Plants in Bagmara Upazila of Rajshahi District, Bangladesh. LAP Lambert Academic Publishing, Germany.
- [83] Hooker, J.D. (1877). The Flora of British India, Vols. 1-7. L. Reeve & Co. Ltd. Kent, London.
- [84] Huq, A.M. (1986). Plant Names of Bangladesh. Bangladesh National Herbarium, BARC, Dhaka, Bangladesh.
- [85] Pasha, M.K., Uddin, S.B. (2013). Dictionary of Plant Names of Bangladesh. Janokalyan Prokashani. Chittagong, Bangladesh.
- [86] Prain, D. (1903). Bengal Plants, Vols. 1-2. Botanical Survey of India, Calcutta, 1903.
- [87] Uddin, M.Z., Hassan, M.A. (2014). Determination of informant consensus factor ethnomedicinal plants used in Kalenga forest, Bangladesh. *Bangladesh J. Plant Taxon*. 2014; 21(1): 83-91.
- [88] Uddin, M.Z., Kibria, M.G., Hassan, M.A. (2015). Study of Ethnomedicinal Plants used by local people of Feni District, Bangladesh. *J. Asiat. Soc. Bangladesh, Sci*. 41(4): 735-757.
- [89] Choudhury, A.R., Rahmatullah, M. (2012). Ethnobotanical study of wound healing plants among the folk medicinal practitioners several district in Bangladesh. *American- Eurasian Journal of Sustainable Development*. 6(4): 371-377.
- [90] Faruque, M.O., Uddin, S.B. (2014). Ethnomedicinal study of the Marma community of Bandarban district of Bangladesh. *Academia Journal of Medicinal Plants*. 2(2): 014- 025.
- [91] Uddin, M.Z., Rifat, A.B., Mitu, F.Y., Haque, T. (2019). Ethnomedicinal Plants for Prevention of Cardiovascular Diseases in Bangladesh. *Bangladesh J. Plant Taxon*. 26(1): 83-95.

- [92] Bangladesh Population Census (BPC). (2001). Bangladesh Bureau of Statistics; Cultural survey report of Rajshahi, retrieved 2007.
- [93] Alexiades, M.N (Ed). (1996). Selected Guidelines for Ethno Botanical Research: A Field Manual. The New York Botanical Garden, New York, 305pp.
- [94] Ahmed, Z.U., Begum, Z.N.T., Hassan, M.A., Khondker, M., Kabir, S.M.H., Ahmad, M., Ahmed, A.T.A., Rahman, A.K.A., Haque EU(Eds). (2008-2009).Encyclopedia of Flora and Fauna of Bangladesh. Vols. 6-10. Asiatic Society of Bangladesh, Dhaka
- [95] Anisuzzaman, M, Rahman, A.H.M.M, Rashid, M.H, Naderuzzaman, A.T.M, Islam, A.K.M.R. (2007). An Ethnobotanical Study of Madhupur, Tangail. *Journal of Applied Sciences Research*. 3(7): 519-530.
- [96] Ghani, A. (2003). Medicinal Plants of Bangladesh. Asiatic Society of Bangladesh, Dhaka.
- [97] Yusuf, M, Wahab, M.A, Choudhury, J.U, Begum, J. (2006). Ethno-medico-botanical knowledge from Kaukhali proper and Betunia of Rangamati district. *Bangladesh J.Plant Taxon*. 13(1): 55-61.



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