

Medico-botany on herbaceous plants of Rajshahi, Banglabesh

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Abstract: Medico-botanical studies on herbaceous angiospermic plant species growing of Rajshahi was recorded during the period of January 2011 to June 2012. A total of 91 plant species under 80 genera belonging to 35 families were collected and recorded for their use in various ailments. For each species scientific name, local name, family, ailments to be treated, mode of treatment and part(s) used are provided. In majority cases, leaves of the medicinal plants were found leading in terms of their use followed by whole plant, stem, bark, latex, fruits, flowers, rhizome, seed, bulb, tuber, root and inflorescence. Data have been gathered on the traditional uses of plant species, especially for asthma, anthelmintic, astringent, burning sensation, constipation, conjunctivitis, diarrhea, diabetes, eczema, earache, fever, fracture, gonorrhea, headache, heart disease, itches, jaundice, kidney disease, leprosy, piles, scabies, snake-bite, sex problems, syphilis, ulcers, vertigo, wound, worm and others.

Keywords: Medico-Botany, Herbaceous Angiospermic Plants, Rajshahi, Banglabesh

1. Introduction

A herbaceous plant (in botanical use simply herb) is a plant that has leaves and stems that die down at the end of the growing season to the soil level. They have no persistent woody stem above ground. Herbaceous plants may be annuals, biennials or perennials. Annual herbaceous plants die completely at the end of the growing season or when they have flowered and fruited, and they then grow again from seed [7].

Herbaceous perennial and biennial plants have stems that die at the end of the growing season, but parts of the plant survive under or close to the ground from season to season (for biennials, until the next growing season, when they flower and die). New growth develops from living tissues remaining on or under the ground, including roots, a caudex (a thickened portion of the stem at ground level) or various types of underground stems, such as bulbs, corms, stolons, rhizomes and tubers. Examples of herbaceous biennials include carrot, parsnip and common ragwort; herbaceous perennials include peony, hosta, mint, most ferns and most grasses. By contrast, non-herbaceous perennial plants are woody plants which have stems above ground that remain alive during the dormant season and grow shoots the next year from the above-ground parts—

these include trees, shrubs and vines. A potato and many more vegetables is an herbaceous plant [13].

Most of the herbaceous species have extensive root system that holds the soil and protects it from erosion by water and wind current. Moreover, after death, the plant body gets mixed up with soil and form humus and thereby increases soil fertility. Some leguminous herbs help to fix atmospheric nitrogen. Some of the plants are used as fodder and also are used as medicine by the local people [19].

In Bangladesh so far a number of medico-botanical researches have been carried out [2], [3], [16], [17], [18], [20], [21], [22], [23], [24], [12]. But none of them was devoted to medico-botany on herbaceous plants of Rajshahi. The aim of the present study was to record medicinal knowledge of herbaceous angiospermic plants used by the local communities living of Rajshahi.

2. Materials and Methods

The present study is based on the intensive field of the area during the period of January 2011 to June 2012. A total of 200 people having an age range 17-80 years were interviewed using semi-structured interviewed method [4], [14]. Professionally they were peasant, day labor, farmer, betel leaf cultivators, house wives, medicine men, small

shop keepers etc. Among them 90 were female and rest 110 were male. Regular field studies were made in the study area during the period. The information about the plants used for various diseases was gathered through interviews and discussion with the elderly people, medicine men and traditional medical practitioners were also consulted. Triangulation methods have been followed for data validation in the field [5]. Plant specimens with flowers and fruits were collected and processed using standard herbarium techniques [4], [9]. Herbal plants referred by these people were authentically identified with the help of [8], [10], [11], [15], and [1]. The voucher specimens are stored at Rajshahi University Herbarium (RUH) for future reference.

3. Results and Discussion

In the present medico-botanical survey, a total of 91 herbaceous angiospermic plant species belonging to 80 genera and 35 families were recorded. For each species scientific name, local name, family, ailments to be treated, mode of treatment and part(s) used are provided (Table 1).

Use of plant parts as medicine shows variation. Leaves (59.34%) are the leading part used in a majority of medicinal plants followed by 28.57% roots, 28.57% whole plant, 8.79% stem, 6.59% flower, 4.39% fruit, 4.39% tuber, 3.29% rhizome, 3.29% seed, 2.19% bark, 2.19% bulb, 1.09% inflorescence and 1.09% latex (Table 2). In the present study area this threat was minimal as leaves were the leading plants parts used for medicinal purposes.

Distribution of medicinal plant species in the families shows variation (Table 3). Asteraceae is represented by 29 species, Amaranthaceae is represented by 7 species, Acanthaceae is represented by 5 species, Lamiaceae is represented by 4 species and each Euphorbiaceae, Solanaceae, Araceae and Liliaceae are represented by three

species. A single species in each was recorded by 21 families while two species in each was recorded by six families. The survey indicated that the common medicinal plant families in the study area are Acanthaceae, Asteraceae, Apiaceae, Araceae, Cucurbitaceae, Ephorbiaceae, Lamiaceae, Liliaceae, Menispermaceae, Oxalidaceae, Piperaceae, Solanaceae, Vitaceae and Zingiberaceae. These findings of common medicinal plant families in the study is in agreement with [25] and [6].

The survey has also recorded 96 categories of uses of 91 medicinal plants (Table 4). This is the indication of rich knowledge of medicinal uses of plants by the local people in the study area. Among them, 19 species were used to cure fever, 13 species for wound, 12 species in each for cough, diuretic and skin disease, 10 species for stomachic, 8 species for each of tonic and piles, 7 species for dysentery, 6 species for each of astringent, diabetes, ulcers, snake-bite and jaundice, 5 species for each of constipation, ophthalmia and demulcent. Thirty seven categories of ailments were treated by two to four species and other forty two categories of ailments were treated by only one species. Use of species in different ailments showed also variations. *Helianthus annuus* L. has been used for treatment of 20 ailments, *Tridax procumbens* L. for 17 ailments, *Boerhaavia repens* L. and *Vernonia cinerea* (L.) Less. for 12 ailments in each, *Tinospora cordifolia* Miers. and *Xanthium indicum* Koen ex Roxb. for 11 ailments in each, each of *Celosia criatata* L., *Wedelia chinensis* (Osbeck) Merr. for 8 ailments, *Portulaca quadrifida* L. and *Tagetes patula* L. for 7 ailments in each. For treating two to six ailments 65 species were used. The remaining 16 species of the total were used for the treatment of a single ailment (Table 1). Among the medicinal use of plants, the survey reported a good number of new uses those were not mentioned in the previous literatures [25], [6].

Table 1. Enumeration of plants and their diversity in use of medico-botany by the local people of Rajshahi.

S/N	Scientific name	Local name	Family name	Part(s) used	Ailments	Treatment process
1	<i>Andrographis paniculata</i> Wall ex Nees.	Kalomegh	Acanthaceae	Leaf, Wholeplant	Wound, itches, dysentery, diarrhea, fever, helminthiasis	Taken leaves paste, also applied whole plants juice and leaves juice mixed with salt and water
2	<i>Achyranthes aspera</i> L.	Apang	Amaranthaceae	Leaf, Root	Abortion, diuretic, eczema	Taken roots juice, also taken leaves paste
3	<i>Aerva lanata</i> Juss.	Chaya	Amaranthaceae	Wholeplant	Diuretic, demulcent, vermifuge, headache, cough	Taken whole plant juice
4	<i>Alternanthera sessilis</i> R. Br.	Chachi	Amaranthaceae	Wholeplant	Lactagogue, febrifuge	Taken whole plant juice
5	<i>Amaranthus spinosus</i> L.	Kantanotey	Amaranthaceae	Wholeplant	Asthma	Applied whole plants juice
6	<i>Amaranthus lividus</i> Willd.	Gobranotey	Amaranthaceae	Root	Menstrual flow	Roots act as reduce menstrual flow.
7	<i>Amaranthus viridis</i> L.	Shaknotey	Amaranthaceae	Leaf	Demulcent, diuretic, snake-bite	Applied leaves paste
8	<i>Aristolachia indica</i> L.	Isharmul	Aristolachiaceae	Leaf, Seed	Cough, inflammations, biliousness, ulcers, eczema	Taken leaves juice, also taken seeds paste and leaves juice mixed with castor oil

9	<i>Ageratum conyzoides</i> L.	Ochunti	Asteraceae	Wholeplant, Leaf, Stem	Skin disease, leprosy, stomach disorder, tonic, wound	Both leaves and stems paste taken, also applied whole plants juice and leaves paste
10	<i>Acalypha indica</i> L.	Muktajhuri	Euphorbiaceae	Leaf	Skin disease	Taken leaves juice
11	<i>Abrus precatorius</i> L.	Kuch	Fabaceae	Seed	Paralysis	Taken seeds paste
12	<i>Abutilon indicum</i> (L.) Sweet.	Petari	Malvaceae	Leaf, Root	Diuretic, demulcent, fever, gonorrhoea, piles	Taken infusions of the leaves and roots, applied cooked leaves
13	<i>Argemone mexicana</i> L.	Sialkata	Papaveraceae	Root, Stem, Latex	Diuretic, diabetes, jaundice, itches, skin disease	Taken roots juice, also taken stems curry and latex
14	<i>Alocasia indica</i> (Roxb.) Schott.	Mankachu	Araceae	Leaf, Tuber	Cough, constipation, kidney disease, stomachic, colic, Piles,	Taken leaves curry, also taken tuber curry and paste
15	<i>Amorphophallus campanulatus</i> (Roxb.) Bl. Ex Decne	Olkachu	Araceae	Tuber	Fever, constipation, Stomachic, abdominal pain	Taken leaves curry, also taken tuber curry and paste
16	<i>Allium cepa</i> L.	Piaj	Liliaceae	Bulb	Cough, headache	Taken bulb/scales juice
17	<i>Allium sativum</i> L.	Rosun	Liliaceae	Bulb	Piles, rheumatism	Taken fresh bulb, also applied bulb juice
18	<i>Aloe vera</i> L.	Ghritakumari	Aloeaceae	Leaf	Piles, menstrual disease, sex problems	Applied leaves mucilage, also taken leaves juice
19	<i>Asparagus racemosus</i> L.	Satamuli	Liliaceae	Root, Wholeplant	Diarrhoea, diabetes, jaundice, urinary disease	Taken tuberous roots juice, also taken whole plant juice
20	<i>Barleria prionitis</i> L.	Kanta-jhati	Acanthaceae	Root, Leaf, Bark	Boils, toothache, cough, jaundice	Taken root paste, chewing of leaves, also applied dried bark
21	<i>Blumea lacera</i> (Burm.f.) DC	Kuksim	Asteraceae	Leaf, Root	Anthelmintic, febrifuge, astringent, diuretic, bleeding piles, cholera	Applied leaves juice, also taken leaves juice mixed with black pepper and root juice mixed with black pepper
22	<i>Blumea laciniata</i> (Roxb.) DC	Kuksim	Asteraceae	Wholeplant, Root	Bronchitis, blood diseases, fevers, burning sensation, mouth ulcers	Taken whole plant juice, also taken root juice
23	<i>Basella alba</i> L.	Puishak	Basellaceae	Whole plant, Leaf	Demulcent, diuretic, laxative, gonorrhea, constipation	Cooked whole plant is taken, also taken leaves juice
24	<i>Boerhaavia repens</i> L.	Punamava	Nyctaginaceae	Whole plant, Root, Leaf	Stomachic, laxative, emetic, diuretic, dropsy, pain, dysentery, epilepsy, jaundice, anaemia, ophthalmia, gonorrhoea	Taken whole plant juice, also applied both of root and leaves juice
25	<i>Biophytum sensitivum</i> (L.) DC.	Panilajuk	Oxalidaceae	Whole plant	Stomachic, stimulant, tonic, diuretic	Taken whole plant juice
26	<i>Celosia criatata</i> L.	Moragphul	Amaranthaceae	Whole plant	Biliousness, dysentery, diarrhea, painful menstruation, snake-bite, demulcent, astringent, ophthalmia	Taken whole plant juice, also applied whole plant paste
27	<i>Centella asiatica</i> (L.) Urban	Thankuni	Apiaceae	Whole plant, Leaf	Dysentery, eczema, headache	Taken whole plant vegetable, also taken young leaves paste
28	<i>Coriandrum sativum</i> L.	Dhoney	Apiaceae	Leaf, Fruit	Carminative, diuretic, tonic, stomachic	Taken young leaves, also taken dried fruits mixed with curry
29	<i>Calendula officinalis</i> L.	Calendula	Asteraceae	Whole plant, Flower	Wound, injury, ulcers, burning sensation, skin disease	Taken flower paste, also applied whole plant paste
30	<i>Cirsium arvense</i> (L.) Scop.	Circium	Asteraceae	Leaf, Stem	Antiscorbutic	Both leaves and stem paste taken
31	<i>Callistephus chinensis</i> Bailey.	Aster	Asteraceae	Root	Cough, pulmonary affections, malaria, haemorrhages	Taken root juice, also taken root paste

32	<i>Chenopodium album</i> L.	Batuashak	Chenopodiaceae	Leaf	Digestive, stomachic, constipation,	Taken young leaves curry
33	<i>Cuscuta reflexa</i> L.	Samalata	Cuscutaceae	Whole plant	Liver disease	Taken whole plant decoction
34	<i>Coccinea grandis</i> (L.) J. Voigt.	Telakucha	Curcubitaceae	Leaf	Diabetes, fever	Taken young leaves vegetable
35	<i>Curcuma longa</i> L.	Halud	Zingiberaceae	Rhizome	Abscess, eczema	Taken rhizome paste
36	<i>Cynodon dactylon</i> Pers.	Durbaghas	Poaceae	Leaf, Whole plant	Skin disease, stop bleeding, wound	Taken young leaves paste, also applied whole plant Paste
37	<i>Costus speciosus</i> Sm.	Costus	Costaceae	Rhizome	Diabetes, high fever	Taken rhizome juice
38	<i>Colocasia esculenta</i> (L.) Schott.	Kachu	Araceae	Leaf, Tuber	Constipation, colic, digestive,	Taken leaves curry, also taken tuber curry and paste
39	<i>Cassia sophera</i> L.	Kalkasundha	Caesalpiniaceae	Leaf	Dyspepsia	Taken leaves and roots decoction
40	<i>Chrysanthemum coronarium</i> L.	Chandramollica	Asteraceae	Bark, Leaf	Syphilis, inflammation	Taken bark paste, also taken leaves paste
41	<i>Cosmos caudatus</i> Cav.	Cosmos	Asteraceae	Leaf, Stem	Skin disease, leprosy, eczema	Applied leaves paste, also taken stems paste
42	<i>Dioscorea bulbifera</i> L.	Pataalu	Dioscoreaceae	Tuber, Leaf	Bone fracture, boils	Taken both of tuber and leaves paste
43	<i>Eclipta alba</i> L.	Kalokeshi	Asteraceae	Leaf	Wound, skin disease	Taken young leaves paste
44	<i>Ethulia conyzoides</i> L.	Ethulia	Asteraceae	Leaf, Root	Wound, antilithic properties	Applied young leaves paste, also taken root juice
45	<i>Enhydra fluctuans</i> Lour.	Helencha	Asteraceae	Leaf	Inflammation, leucoderma, bronchitis, biliousness, small pox, gonorrhea, headache	Taken leaves juice, also applied leaves juice mixed with milk and taken leaves paste
46	<i>Euphorbia hirta</i> L.	Dudhiya	Euphorbiaceae	Leaf	Bronchitis, cough	Taken leaves juice
47	<i>Gnaphalium pulvinatum</i> Delile.		Asteraceae	Leaf	Astringent, wound, gout	Taken leaves paste
48	<i>Grangea maderespatana</i> (L.) Poir.	Namuti	Asteraceae	Whole plant, leaf	Ovarian disorder, earache, cough, emmenagogue	Applied whole plant paste, also taken leaves juice and roasted leaves decoction
49	<i>Helianthus annuus</i> L.	Surjamuki	Asteraceae	Flower, Seed	Heart disease, anthelmintic, skin disease, itching, ulcers, leprosy, hysteria, fever, biliousness, asthma, bronchitis, urinary discharges, anaemia, good for burning sensation in the vagina, worms in the cars, insect-bite, snake-bite, pulmonary affections, coughs, colds.	Taken seeds oil, also taken flowers paste and juice
50	<i>Heliotropium indicum</i> L.	Hatisur	Boraginaceae	Leaf	Fever, skin disease	Taken leaves decoction, also applied leaves paste
51	<i>Justicia adhatoda</i> L.	Basak	Acanthaceae	Leaf	Cough, fever	Taken leaves juice
52	<i>Justicia gendarussa</i> Burm.f.	Jagathmadan	Acanthaceae	Leaf	Asthma, fracture, itches, wound	Taken leaves juice, also applied leaves paste
53	<i>Kalanchoe pinnata</i> (Lamk.) Pers.	Patharkuchi	Crassulaceae	Leaf	Cough, dysentery, diuretic, diabetes, fracture	Applied young leaves juice, also taken leaves paste
54	<i>Launaea asplenifolia</i> DC.	Tik-chana	Asteraceae	Root	Lactagogue	Applied root juice combination with other drugs
55	<i>Leucas aspera</i> L.	Setodron	Lamiaceae	Leaf	Fever, worm	Taken young leaves juice
56	<i>Leucas cephalotes</i> (Roth.) Spreng	Barahalkusha	Lamiaceae	Leaf, Root	Asthma, cough	Both of leaves and root juice is taken
57	<i>Mimosa pudica</i> L.	Ljjabati	Fabaceae	Root	Fever, snake-bite	Taken roots decoction, also taken

58	<i>Momordica charantia</i> Descourt.	Korola	Cucurbitaceae	Leaf, Fruit	Chickenpox, rheumatism, diabetes	roots juice Applied leaves Juice, also taken curry made from unripe fruits
59	<i>Mikania cordata</i> (Burm.f) Robinson	Assamlata	Asteraceae	Leaf	Cut injury	Applied leaves juice
60	<i>Musa paradisiaca</i> L.	Kala	Musaceae	Stem	Blood pressure	Sap of the central cylindrical stem of the fruited plants is used
61	<i>Ocimum sanctum</i> L.	Tulsi	Lamiaceae	Leaf, Root	Cough, fever	Taken young leaves juice, also applied roots juice
62	<i>Ocimum basilicum</i> L.	Babuitulsi	Lamiaceae	Leaf	Bronchitis	Leaves juice taken
63	<i>Oxalis corniculata</i> L.	Amrul	Oxalidaceae	Leaf	Anaemia, cough	Taken leaves Juice, also taken young leaves vegetable
64	<i>Parthenium hysterophorus</i> L.	Gandiboti	Asteraceae	Whole plant, root	Tonic, febrifuge, emmenagogue, dysentery	Applied whole plants juice, also taken roots juice
65	<i>Piper betel</i> L.	Pan	Piperaceae	Leaf	Cut injury, stomachic	Leaves juice taken, also applied leaves with catechu
66	<i>Polygonum hydropiper</i> L.	Biskatali	Polygonaceae	Leaf	Insects-bite	Applied leaves juice
67	<i>Portulaca quadrifida</i> L.	Nuniasak	Portulacaceae	Whole plant	Diuretic, dysentery, diseases of liver, spleen, kidney, scurvy, piles	Taken whole plant curry
68	<i>Physalis minima</i> L.	Kapalphutki	Solanaceae	Root	Diuretic	Taken roots Juice
69	<i>Phyllanthus niruri</i> L.		Euphorbiaceae	Whole plant, Leaf	Skin disease, dehydration	Decoction as whole plant lotion, leaves juice is taken
70	<i>Rungia pectinata</i> (L.) Nees.	Pindi	Acanthaceae	Leaf	Small pox, pain	Taken leaves juice, also applied bruised leaves
71	<i>Rauvolfia serpentina</i> Benth.	Sarpagandha	Apocynaceae	Root	Blood pressure, heart disease, dysentery, diarrhoea	Applied roots juice, also taken roots decoction
72	<i>Sonchus arvensis</i> L.	Sonchus	Asteraceae	Whole plant	Bitter, diuretic, chronic fever	Applied whole plant juice
73	<i>Sonchus asper</i> Vill.	Sonchus	Asteraceae	Whole plant, Root	Jaundice, bitter, diuretic, chronic fevers, emollient	Taken whole plant juice, also applied root juice
74	<i>Solanum nigrum</i> L.	Titbegun	Solanaceae	Fruit	Diuretic, heart disease	Applied green fruits Juice
75	<i>Solanum torvum</i> Swartz.	Titbegun	Solanaceae	Root	Menstruation problems, diabetes	Taken root juice
76	<i>Spilanthes calva</i> DC.	Spilanthes	Asteraceae	Inflorescence	Toothache	Chewing inflorescence
77	<i>Synedrella nodiflora</i> (L.) Gaertn.	Synedrella	Asteraceae	Leaf, Root	Boils, tetanus, wound, ophthalmia.	Taken leaves paste, also applied roots decoction
78	<i>Stephania japonica</i> (Thunb.) Miers.	Akamandi	Menispermaceae	Root, Leaf	Astringent, fever, diarrhea, dyspepsia, abscess, vertigo, dysentery	Taken both of root and leaves juice, applied leaves paste, also taken root paste
79	<i>Scoparia dulcis</i> L.	Bandhaniya	Scrophulariaceae	Root	Snake-bite Bleeding piles, kidney troubles, muscular pain, earache, ophthalmia, bitter, astringent, carminative, stomachic, inflammation, scabies, insect-bite, snake-bate, liver disease, bleeding piles, ulcers, blood disease	Taken roots Juice
80	<i>Tridax procumbens</i> L.	Tridhara	Asteraceae	Whole plant, Leaf, Flower		Applied whole plant juice, also taken leaves juice, applied flowers paste and juice
81	<i>Tagetes patula</i> L.	Genda	Asteraceae	Flower, Leaf	Bitter, piles, kidney troubles, muscular pain, earache, ophthalmia, boils	Taken distilled flowers oil, also taken flower paste, applied

82	<i>Tinospora cordifolia</i> Miers.	Gulancha	Menispermaceae	Whole plant, Stem	Stomachic, febrifuge, tonic, fever, skin disease, rheumatism, heart disease, jaundice, burning sensation, colic, dropsy	leaves paste and juice Taken stem juice, also taken fresh plant juice
83	<i>Vernonia cinerea</i> (L.) Less.	Kuksim	Asteraceae	Whole plant, Flower, Root	Cold, tonic, stomachic, astringent, asthma, sores, bronchitis, fevers, leucoderma, wounds, dropsy, conjunctivitis	Applied whole plants juice, also taken flowers paste and juice, taken roots paste
84	<i>Vernonia patula</i> (Dryand) Merrill	Kuksim	Asteraceae	Flower	Ulcers, wounds, dysmenorrhoea, dropsy	Taken flower heads paste
85	<i>Vitis quadrangularis</i> Wall.	Harjora	Vitaceae	Bark	Bone fracture	Taken bark Paste
86	<i>Wedelia chinensis</i> (Osbeck) Merr.	Mohabringaraj	Asteraceae	Whole plant, Leaf	Hair disease, jaundice, fevers, astringent, haemorrhages, toothache, asthma, bronchitis	Taken leaves juice, also applied whole plants juice and paste
87	<i>Wedelia trilobata</i> (L.) A.S. Hitchc.	Mohabringaraj	Asteraceae	Leaf	Tonic, alterative, cough, skin diseases, alopecia, swelling of the abdomen	Taken leaves juice and paste
88	<i>Xanthium indicum</i> Koen ex Roxb.	Ghagra	Asteraceae	Whole plant, Stem, Fruit, Root, Leaf	Diabetes, bitter, tonic, cancer, small-pox, snake-bite, insect-bite, ulcers, boils, abscess, herpes	Taken young stems, also taken roots juice, taken fruits, applied whole plants paste, leaves paste
89	<i>Youngia japonica</i> (L.) DC.	Youngia	Asteraceae	Leaf, Root	Wounds, antilithic properties	Taken leaves paste, also applied roots juice
90	<i>Zinnia elegans</i> L.	Zinnia	Asteraceae	Leaf, Stem	Skin disease, leprosy, ecchymoses, boils, tetanus, wound	Both leaves and stems paste taken
91	<i>Zingiber officinale</i> Roscoe	Ada	Zingiberaceae	Rhizome	Fever, bronchitis	Applied zinger rhizome with betel and also taken juice

Table 2. Number of plant parts used for medicinal purpose.

S/N	Name of plant parts	Use of plant parts	Percentage (%)	Total number of species
1	Leaf	54	59.34	91
2	Whole plant	26	28.57	91
3	Root	26	28.57	91
4	Stem	8	8.79	91
5	Bark	2	2.19	91
6	Flower	6	6.59	91
7	Fruit	4	4.39	91
8	Rhizome	3	3.29	91
9	Tuber	4	4.39	91
10	Inflorescence	1	1.09	91
11	Seed	3	3.29	91
12	Bulb	2	2.19	91
13	Latex	1	1.09	91

Table 3. Distribution of species among different families.

S/N	Family name	Number of species	Percentage (%)	Total number of species
1	Acanthaceae	5	5.49	91
2	Aloeaceae	1	1.09	91
3	Amaranthaceae	7	7.69	91
4	Apiaceae	2	2.19	91
5	Apocynaceae	1	1.09	91
6	Araceae	3	3.29	91
7	Aristolachiaceae	1	1.09	91
8	Asteraceae	29	31.86	91
9	Basellaceae	1	1.09	91
10	Boraginaceae	1	1.09	91
11	Caesalpiniaceae	1	1.09	91
12	Crassulaceae	1	1.09	91
13	Chenopodiaceae	1	1.09	91
14	Costaceae	1	1.09	91

15	Cuscutaceae	1	1.09	91
16	Cucurbitaceae	2	2.19	91
17	Dioscoriaceae	1	1.09	91
18	Euphorbiaceae	3	3.29	91
19	Fabaceae	2	2.19	91
20	Lamiaceae	4	4.39	91
21	Liliaceae	3	3.29	91
22	Malvaceae	1	1.09	91
23	Menispermaceae	2	2.19	91
24	Musaceae	1	1.09	91
25	Nyctaginaceae	1	1.09	91
26	Oxalidaceae	2	2.19	91
27	Papaveraceae	1	1.09	91
28	Piperaceae	1	1.09	91
29	Poaceae	1	1.09	91
30	Portulacaceae	1	1.09	91
31	Polygonaceae	1	1.09	91
32	Scrophulariaceae	1	1.09	91
33	Solanaceae	3	3.29	91
34	Vitaceae	1	1.09	91
35	Zingiberaceae	2	2.19	91

Table 4. Number of medicinal plants used in different categories of ailments.

S/N	Categories of ailments	Number of species	Percentage (%)	Total number of species
1	Abortion	1	1.09	91
2	Abscess	2	2.19	91
3	Asthma	4	4.39	91
4	Abdominal pain	1	1.09	91
5	Anthelmintic	1	1.09	91
6	Astringent	6	6.59	91
7	Anaemia	3	3.29	91
8	Antiscorbutic	1	1.09	91
9	Alterative	1	1.09	91
10	Alopecia	1	1.09	91
11	Anthelitic properties	2	2.19	91
12	Bone fracture	4	4.39	91
13	Biliousness	3	3.29	91
14	Blood disease	1	1.09	91
15	Burning sensation	4	4.39	91
16	Bronchitis	4	4.39	91
17	Boils	5	5.49	91
18	Bitter	4	4.39	91
19	Blood pressure	1	1.09	91
20	Cough	12	13.18	91
21	Colds	2	2.19	91
22	Constipation	5	5.49	91
23	Carminative	3	3.29	91
24	Cholera	1	1.09	91
25	Colic	2	2.19	91
26	Cancer	1	1.09	91
27	Chicken pox/small pox	3	3.29	91
28	Conjunctivitis	1	1.09	91
29	Dysentery	7	7.69	91
30	Diarrhoea	3	3.29	91
31	Diuretic	12	13.18	91
32	Demulcent	5	5.49	91
33	Diabetes	6	6.59	91
34	Dropsy	4	4.39	91
35	Digestive	2	2.19	91
36	Dyspepsia	2	2.19	91
37	Dehydration	1	1.09	91
38	Dysmenorrhoea	1	1.09	91
39	Eczema	3	3.29	91
40	Epilepsy	1	1.09	91
41	Emetic	1	1.09	91
42	Emollient	1	1.09	91
43	Earache	2	2.19	91

44	Emmenagogue	1	1.09	91
45	Echymoses	1	1.09	91
46	Fever	19	20.87	91
47	Febrifuge	2	2.19	91
48	Gonorrhoea	4	4.39	91
49	Gout	1	1.09	91
50	Helminthiasis	1	1.09	91
51	Headache	4	4.39	91
52	Haemorrhages	2	2.19	91
53	Hysteria	1	1.09	91
54	Heart disease	2	2.19	91
55	Hair disease	1	1.09	91
56	Herpes	1	1.09	91
57	Itches	4	4.39	91
58	Infammations	4	4.39	91
59	Injury	3	3.29	91
60	Insect-bite	4	4.39	91
61	Jaundice	6	6.59	91
62	Kidney disease	3	3.29	91
63	Lactagogue	2	2.19	91
64	Leprosy	4	4.39	91
65	Liver disease	1	1.09	91
66	Laxative	1	1.09	91
67	Leucoderma	2	2.19	91
68	Menstrual disease	4	4.39	91
69	Malaria	1	1.09	91
70	Ophthalmia	5	5.49	91
71	Ovarian disorder	1	1.09	91
72	Piles	8	8.79	91
73	Paralysis	1	1.09	91
74	Pain	4	4.39	91
75	Pulmonary affection	2	2.19	91
76	Rheumatism	3	3.29	91
77	Snake-bite	6	6.59	91
78	Skin disease	12	13.18	91
79	Stomachic	10	10.98	91
80	Syphilis	1	1.09	91
81	Stop bleeding	1	1.09	91
82	Stimulant	1	1.09	91
83	Sex problems	1	1.09	91
84	Scabies	1	1.09	91
85	Sores	1	1.09	91
86	Scurvy	1	1.09	91
87	Spleen disease	1	1.09	91
88	Tonic	8	8.79	91
89	Toothache	2	2.19	91
90	Tetanus	1	1.09	91
91	Ulcers	6	6.59	91
92	Urinary disease	1	1.09	91
93	Vermifuge	1	1.09	91
94	Vertigo	1	1.09	91
95	Wound	13	14.28	91
96	Worm	1	1.09	91

4. Conclusion

The present findings are probably the first record of medico-botanical knowledge on herbaceous angiospermic plants for Rajshahi using standard research protocols. The present study may be a preliminary contribution to the medico-botany of this area using standard research methods, focusing on herbaceous angiospermic medicinal plants and their local uses for the healthcare. This healthcare knowledge transmitted orally from one generation to generation. The study also suggested that the present

information on medicinal use of plants by local people may be used for botanical and pharmacological research in future for the discovery of new sources of drugs.

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References

- [1] 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 and Haque E U(Eds). Encyclopedia of Flora and Fauna of Bangladesh. Angiosperms; Dicotyledons. Asiat. Soc. Bangladesh, Dhaka, Vol 6-12, 2007-2009.
- [2] Alam M K. Medical ethno-botany of the Marma tribe of Bangladesh. *Economic Botany*, 1992; 46(3): 330-335.
- [3] Anisuzzamam M, Rahman A H M M, Harun-Or-Rashid M, Zaman A T M N and Islam A K M R. An Ethnobotanical Study of Madhupur, Tangail. *Jour. App. Sci. Res.* 2007; 3(7): 519-530.
- [4] Alexiades M N (Ed). Selected Guidelines for Ethno Botanical Research: A Field Manual. The New York Botanical Garden, New York., 1996.
- [5] Dean J P, Whyte W F. How do you know if the informant is telling truth? *Human Organization.*, 1959; 17: 34-38.
- [6] Ghani A. Medicinal Plants of Bangladesh. Asiatic Society of Bangladesh, Dhaka. 1998.
- [7] Gray's Manual of Botany, American Book Co., 1889.
- [8] Hooker J D. Flora of British India, Reeve and Co. Ltd., London., Vol 1-7, 1961.
- [9] Hyland B P M. A technique for collecting botanical specimens in rain forest. *Flora Malesiana Bulletin.*, 1972; 26: 2038-2040.
- [10] Kirtikar K R and Basu B D. Indian Medicinal Plants, Lalit Mohan Basu, M.B. 49, Leader Road, Allahbad, India., Vol 1-4, 1987.
- [11] Khan M S and Huq A M. Medicinal Plants of Bangladesh, BARC, Dhaka, Bangladesh, 1975.
- [12] Khan M S. Prospects of Ethnobotany and Ethnobotanical Research in Bangladesh. In: Banik RL, Alam MK, Pei SJ, Rastogi A (eds.), *Applied Ethnobotany*, BFRI, Chittagong, Bangladesh, 1998; pp. 24-27.
- [13] Levine C. A guide to Wildflowers in winter: herbaceous plants of Northeastern North America. New Haven: Yale University Press. 1995; p.1.
- [14] Martin GJ. *Ethnobotany: A methods Manual*, Chapman & Hall. London., 1995.
- [15] Prain D. *Bengal Plants*, Botanical Survey of India, Calcutta. Vol 1-2, 1963.
- [16] Rahman A H M M, Anisuzzaman M, Haider S A, Ahmed F, Islam A K M R and Naderuzzaman A T M. Study of Medicinal Plants in the Graveyards of Rajshahi City. *Res. Jour. Agri. Bio. Sci.* 2008; 4(1): 70-74.
- [17] Rahman A H M M, Kabir E Z M F, Sima S N, Sultana R S, Nasiruddin M and Zaman A T M N. Study of an Ethnobotany at the Village Dohanagar, Naogaon. *Jour. App. Sci. Res.* 2010; 6(9): 1466-1473.
- [18] Rahman A H M M, Gulsan J E, Alam M S, Ahmad S, Naderuzzaman A T M and Islam A K M R. An Ethnobotanical Portrait of a Village: Koikuri, Dinajpur with Reference to Medicinal Plants. *Int. Jour. Biosci.* 2012; 2(7): 1-10.
- [19] Rahman AHMM, Islam AKMR and Zaman ATMN. Studies on the herbaceous plant species in the graveyards of Rajshahi city. *Plant Environ. Dev.*, 2007; 1(1): 57-60.
- [20] Uddin M Z, Khan M S and Hassan, M A. Ethno medical plants records of Kalenga forest range (Habiganj), Bangladesh for malaria, jaundice, diarrhea and dysentery. *Bangladesh J.Plant Taxon.* 2001; 8(1): 101-104.
- [21] Uddin S N, Uddin M Z, Hassan M A and Rahman M M. Preliminary ethno-medicinal plant survey in Khagrachari district, Bangladesh. *Bangladesh J. Plant Taxon.* 2004; 11(2): 39-48.
- [22] Uddin M Z, Hassan M A and Sultana M. Ethnobotanical survey of medicinal plants in Phulbari Upazilla of Dinajpur District, Bangladesh. *Bangladesh J. Plant Taxon.* 2006; 12(1): 63-68.
- [23] Uddin M, Roy S, Hassan M A and Rahman M M. Medicobotanical report on the Chakma people of Bangladesh. *Bangladesh J. Plant Taxon.* 2008; 15(1): 67-72.
- [24] Uddin M Z, Hassan M A, Rahman M and Arefin K. Ethno-medico-botanical study in Lawachara National Park, Bangladesh. *Bangladesh J.Bot.* 2012; 41(1): 97-104.
- [25] Yusuf M, Begum J, Hoque M N and Choudhury J U. Medicinal plants of Bangladesh-Revised and Enlarged. *Bangladesh Coun. Sci. Ind. Res. Lab.* Chittagong, Bangladesh, 2009.