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A Preliminary Assessment of Angiospermic Flora in and around Rajshahi Metropolitan City, Bangladesh

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Abstract A preliminary assessment of angiospermic flora in and around Rajshahi metropolitan city, Bangladesh conducted during July 2017 to December 2018. A total of 223 species belonging to 176 genera under 74 families were recorded. Asteraceae is the largest family in Magnoliopsida represented by 27 species and, in Liliopsida; Poaceae is the largest family with 9 species. Habit analysis shows that herbs, shrubs, climbers and trees are represented by 93, 37, 28 and 65 species, respectively. Dominant families are recorded like Amaranthaceae, Asteraceae, Apocynaceae, Caesalpiniaceae, Convolvulaceae, Cucurbitaceae, Euphorbiaceae, Fabaceae, Moraceae, Malvaceae, Mimosaceae, Myrtaceae, Poaceae, Rutaceae and Solanaceae. For each species family name, scientific name, local name, habit, status of occurrence and flowering time were provided.

Keywords: *preliminary assessment, angiospermic flora, Rajshahi metropolitan city, Bangladesh*

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1. Introduction

Angiosperms are the most diverse group of land plants, with 64 orders, 416 families, approximately 13,000 known genera and 300,000 known species [1]. Among the most important food plants on a global scale are cereals from the grass family (Poaceae); potatoes, tomatoes, eggplant, and red or chili peppers from the potato family (Solanaceae); legumes or beans (Fabaceae); pumpkins, melons, and gourds from the squash family (Cucurbitaceae); broccoli, cabbage, cauliflower, radish, and other vegetables from the mustard family (Brassicaceae, or Cruciferae); and almonds, apples, apricots, cherries, loquats, peaches, pears, raspberries, and strawberries from the rose family (Rosaceae). Members of many angiosperm families are used for food on a local level, such as ullucu *(Ullucus tuberosus)* in the Andes and cassava *(Manihot esculenta)* throughout the tropics. Tropical angiosperm trees are an important source of timber in the tropics and throughout the world.

The angiosperms provide valuable pharmaceuticals. With the exception of antibiotics, almost all medicinals either is derived directly from compounds produced by angiosperms or, if synthesized, were originally discovered in angiosperms. This includes some vitamins (e.g., vitamin C, originally extracted from fruits); aspirin, originally from the bark of willows *(Salix;* Salicaceae); narcotics (e.g., opium and its derivatives from the opium poppy. *Papaver somniferum;* Papaveraceae); and quinine from *Cinchona* (Rubiaceae) bark. Sonic angiosperm compounds that are highly toxic to humans have proved to be effective in the treatment of certain forms of cancer, such as acute leukemia (vincristine from the Madagascar periwincle, *Catharanthus roseus;* Apocynaceae), and of heart problems (digitalis from foxglove, *Digitalis purpurea;* Plantaginaceae). Muscle relaxants derived from curare *(Strychnos toxifera;* Loganiaceae) are used during open-heart surgery [2,3].

Important research work on angiospermic plants were carried out in Bangladesh by [4-14]. The present research was undertaken to record the preliminary assessment of angiospermic flora in and around Rajshahi metropolitan city, Bangladesh.

2. Materials and Methods

2.1. Study Area

Rajshahi is a metropolitan city, and a major urban, commercial and educational centre of Bangladesh. It is also the administrative seat of eponymous division and district. Located on the north bank of the Padma River, near the Bangladesh-India border, the city has a population of over 763,952 residents. The city is surrounded by the satellite towns of Nowhata and Katakhali, which together build an urban agglomeration of about 1 million populations. Arguably Rajshahi is the most clean and green among the cities in Bangladesh [15].

2.2. Research Methodology

A preliminary assessment of angiospermic flora in and around Rajshahi metropolitan city, Bangladesh was carried out from July 2017 to December 2018. Plant parts with either flower of fruits collected using traditional herbarium techniques to make voucher specimens for documentation. Field identification of the collected specimens was confirmed comparing with herbarium specimens Rajshahi University Herbarium. In some cases, standard literature such as [16,17,18] and [19] were consulted for identification purpose. For update nomenclature [20] and [21] were also consulted. The specimens are deposited in the Herbarium, Department of Botany, Rajshahi University, Bangladesh for future reference.

3. Results and Discussion

A preliminary assessment of angiospermic flora in and around Rajshahi metropolitan city, Bangladesh conducted during July 2017 to December 2018. A total of 223 species belonging to 176 genera under 74 families were recorded. Asteraceae is the largest family in Magnoliopsida represented by 27 species and, in Liliopsida, Poaceae is the largest family with 9 species. Amaranthaceae, Asteraceae, Apocynaceae, Caesalpiniaceae, Convolvulaceae, Cucurbitaceae, Euphorbiaceae, Fabaceae, Moraceae, Malvaceae, Mimosaceae, Myrtaceae, Poaceae, Rutaceae and Solanaceae are the dominant families with high species diversity. For each species scientific name, local name, habit, flowering time, status of occurrence and family name were provided (Table 1). Out of 223 recorded species, herbs are represented by 93(41.70%), trees by 65 (29.14%), shrubs by 37 (16.59%) and climber by 28 (12.55%) species (Figure 1). Out of 223 recorded species, 54 (24.21%) was very common followed by 153 (68.60%) was common, 11 (4.93%) was rare and 4 (1.79%) was very rare species the study area (Figure 2).

The families of angiosperm species distribution in the families was shows variation. Asteraceae is represented by 27 (12.10%) species. Cucurbitaceae and Amaranthaceae are represented by 13 (5.82%) species each. Solanaceae is represented by 12 (5.38%) species. Euphorbiaceae is represented by 11 (4.93%) species. Fabaceae is represented by 10 (4.84%) species, Poaceae is represented by 9 (4.03%) species, Moraceae is represented by 8 (3.58%) species and Lamiaceae is represented by 7 (3.13%) species (Figure 3). A single species in each was recorded by 48 families while two to six species in each was recorded by 37 families (Table 1).

Table 1. Documentation of Angiospermic flora in and around Rajshahi metropolitan city, Bangladesh

Family name	Local name	Scientific name	Habit	Status of occurrence	Flowering time
Acanthaceae	Kalamegh	*Andrographis paniculata* Wall ex Ness.	Herb	C	Jan-Mar
Acanthaceae	Basok	*Justicia adhatoda* L.	Shrub	C	Jan-Dec
Amaranthaceae	Apang	*Achyranthes aspera* L.	Herb	VC	Jan-Dec
Araceae	Man kachhu	*Alocasia indica* (Roxb.) Schott.	Herb	C	Aug-Oct
Aloeaceae	Ghrita kumari	*Aloe indica* (L.) Burm. f.	Herb	C	Jan-Dec
Amaranthaceae	Chanshi	*Alternanthera sessilis* R.Br.	Herb	VC	Jan-Dec
Amaranthaceae	Datashak	*Amaranthus blitum* L.	Herb	VC	Jan-Dec
Amaranthaceae	Gobra notey	*Amaranthus lividus* Roxb.	Herb	VC	Jan-Dec
Amaranthaceae	Katanotey	*Amaranthus spinosus* L.	Herb	VC	Jan-Dec
Amaranthaceae	Lalshak	*Amaranthus tricolor* L.	Herb	VC	Jan-Dec
Amaranthaceae	Shaknoty	*Amaranthus viridis* L.	Herb	VC	Jan-Dec
Amaranthaceae	Morogful	*Celosia cristata* L.	Herb	C	Jan-Dec
Amaranthaceae	Boroa pang	*Cyathula prostrata* (L.) Blume.	Herb	R	Sep-Nov
Anacardiaceae	Jiga	*Lannea coromandelica* (Houtt.) Merr.	Tree	C	Mar-Apr
Anacardiaceae	Aam	*Mangifera indica* L.	Tree	VC	Jan-April
Anacardiaceae	Bilatia amra	*Spondius purpurea* L.	Tree	C	Mar-July
Annonaceae	Aata	*Annona squamosa* L.	Tree	C	Mar-July
Annonaceae	Debdaru	*Polyalthia longifolia* Benth & Hook	Tree	C	Mar-Oct
Apiaceae	Dhonepata	*Coriandrum sativum* L.	Herb	C	Dec-Feb
Apiaceae	Gajor	*Daucus carota* L.	Herb	C	Jan-Dec
Apiaceae	Thankuni	*Centella asiatica* (L.) Urb.	Herb	C	Jan-Dec
Apocynaceae	Karomcha	*Carissa carandas* (L.) K.Schum	Herb	C	Jan-Dec
Apocynaceae	Noyontara	*Catharanthus roseus* (L.) G. Don.	Herb	C	Jan-Dec
Apocynaceae	Korobi	*Nerium indicum* Mill.	Shrub	C	Jan-May
Apocynaceae	Sarpa gandha	*Rauvolfia serpentina* (L.) Benth.	Shrub	C	Jan-Dec
Apocynaceae	Togor	*Tabernaemontana coronaria* (Jacq.) Willd.	Shrub	R	Apr-Sept
Apocynaceae	Halde korobi	*Thevetia peruviana* (Pers.) Schum.	Tree	C	Jan-Dec
Araceae	Olkachu	*Amorphophallus campanulatus* (Roxb.) Bl. ex. Decne.	Herb	C	Jan-Dec
Araceae	Kochu	*Colocasia esculenta* (L.) Schott.	Herb	VC	June-Dec

Family name	Local name	Scientific name	Habit	Status of occurrence	Flowering time
Araceae	Pistia	*Pistia stratiotes* L.	Herb	C	Jan-Dec
Arecaceae	Shupari	*Areca catechu* L.	Tree	VC	Jan-Dec
Arecaceae	Taal	*Borassus flabellifer* L.	Tree	C	June-Dec
Arecaceae	Daab	*Cocos nucifera* L.	Tree	VC	Jan-Dec
Arecaceae	Khejur	*Phoenix sylvestris* (L.) Roxb.	Tree	VC	Dec-May
Asteraceae	Kuksim	*Blumea lacera* (Burm.f) DC	Herb	C	Nov-Jul
Asteraceae	Kuksim	*Blumea laciniata* (Roxb.) DC.	Herb	R	Jan-Dec
Asteraceae	Germanlata	*Chromolaena odorata* (L.) King & Robin	Herb	R	Nov-May
Asteraceae	Chandra mollika	*Chrysanthemm coronarium* L.	Herb	C	Dec-Mar
Asteraceae.	Shial-kata	*Cirsium arvense* (L.) Scop.	Herb	C	Feb-Jun
Asteraceae	Cosmos	*Cosmos bipinnatus* Cav.	Herb	C	Dec-Feb
Asteraceae	Dahlia	*Dahlia hybrida* L.	Herb	C	Jan-Dec
Asteraceae	Kalokesh	*Eclipta alba* (L.) Hassk.	Herb	C	Jan-Dec
Asteraceae	Helencha	*Enhydra fluctuans* Lour.	Herb	C	Nov-Feb
Asteraceae	Barakamra	*Gnaphalium luteo-album* L.	Herb	C	Mar-Aug
Asteraceae	Barakamra	*Gnaphalium polycaulon* Pers.	Herb	C	Dec-May
Asteraceae	Surjo mukhi	*Helianthus annuus* L.	Herb	VC	Jan-Dec
Asteraceae	Tikchana	*Launaea aspleniifolia* DC.	Herb	C	Jan-Dec
Asteraceae	Asamlata	*Mikania cordata* (Burm.f.) Roxb.	Clim	C	Jan-Dec
Asteraceae	Gandibooti	*Parthenium hysterophorus* L.	Herb	C	Dec-Jan
Asteraceae	Ban Palang	*Sonchus asper* L.	Herb	C	Jan-Dec
Asteraceae	Marhatatiga	*Spilanthes calva* DC.	Herb	C	Jan-Dec
Asteraceae	Gunjoni vutraj	*Synedrella nodiflora* (L.) Gaertn.	Herb	C	Jan-Dec
Asteraceae	Genda phul	*Tagetes patula* L.	Herb	C	Nov-Feb
Asteraceae	Tridhara	*Tridax procumbens* L.	Herb	VC	Jan-Dec
Asteraceae	Kuksim	*Vernonia cineria* (L.) Less.	Herb	VC	Jan-Dec
Asteraceae	Shial mutra	*Vernonia patula* Merrill.	Herb	R	Sep-Mar
Asteraceae	Kesraj	*Wedelia chinensis* (Osbeck) Merr.	Herb	R	Jan-Dec
Asteraceae	Kesraj	*Wedelia trilobata* (L.) Hitchc.	Herb	C	Jan-Dec
Asteraceae	Ghagra	*Xanthium indicum* J.Koenig	Herb	C	Jan-Dec
Asteraceae	Crepis	*Youngia japonica* (L.) DC.	Herb	C	Aug-Jan
Asclepiadaceae	Akondo	*Calotropis procera* Br.	Shrub	C	Jan-Dec
Basellaceae	Puishak	*Basella alba* L.	Clim	VC	Nov-Feb
Bixaceae	Jafran	*Bixa orellana* L.	Tree	R	Aug-Nov
Bombacaceae.	Shimul	*Bombex ceiba* L	Tree	C	Feb-Apr
Brassicaceae	Sarisha	*Brassica napus* L.	Herb	C	Mar-May
Brassicaceae	Phulkapi	*Brassica oleracea* L. var. *botrydis*	Herb	C	Dec-Feb
Brassicaceae	Badha kopi	*Brassica oleracea* L. var. *capitata*	Herb	C	Dec-Feb
Boraginaceae	Hatishur	*Heliotropium indicum* L.	Herb	VC	Jan-Dec
Balsaminaceae	Dopati	*Impatiens balsamina* Thumb.	Herb	C	Mar-Aug
Brassicaceae	Mula	*Raphanus sativus* L.	Herb	C	Jan-Mar
Combretaceae	Madhabi lata	*Quisqualis indica* L.	Shrub	C	Jan-Dec
Cyperaceae	Kesur	*Scirpus grossus* L.	Clim	C	Jan-Dec
Caesalpinaceae	Tetul	*Tamarindus indica* L.	Tree	C	Jan-May
Crassulaceae	Pathor kuchi	*Bryophyllum pinnatum* (Lam.) Kurzt.	Herb	C	Nov-Jan
Caesalpinaceae	Krishna chura	*Caesalpinia pulcherrima* L.	Shrub	C	Sep-Nov
Cannaceae	Kalaboti	*Canna indica* L.	Herb	VC	Jan-Dec
Caricaceae	Pepe	*Carica papaya* L.	Tree	VC	Jan-Dec
Caesalpinaceae	Badorlathi	*Cassia fistula* L.	Tree	C	Mar-Apr
Chenopodiaceae	Bothua	*Chenopodium album* L.	Herb	C	Jan-Dec
Combretaceae	Arjun	*Terminalia arjuna* (Roxb.) Wight & Arn.	Tree	C	Apr-July
Combretaceae	Bohera	*Terminalia bellirica* (Gaertn.) Roxb.	Tree	C	Oct-Nov
Combretaceae	Haritaki	*Terminalia chebula* Retz.	Tree	C	May-June
Convolvulaceae	Kalmishak	*Ipomoea aquatica* Forssk.	Clim	C	Jan-Oct
Convolvulaceae	Mistialu	*Ipomoea batatas* (L.) Lamk.	Clim	C	Jan-Dec

Family name	Local name	Scientific name	Habit	Status of occurrence	Flowering time
Convolvulaceae	Dholkalmi	*Ipomoea fistulosa* (Mart. ex Choisy)	Shrub	C	Jan-Dec
Crassulaceae	Pathor kuchi	*Kalanchoe blossfeldiana* Thumb.	Herb	C	Nov-Jan
Cucurbitaceae	Chal kumra	*Benincasa hispida* (Thunb.) Cogn.	Clim	C	May-Sep
Cucurbitaceae	Turmuz	*Citrullus lanatus* (Thunb.) Mat. & Nak.	Clim	C	July-Aug
Cucurbitaceae	Telakucha	*Coccinia cordifolia* (L.) Cogn	Clim	C	Jan-Dec
Cucurbitaceae	Bangi	*Cucumis melo* L.	Clim	C	Mar-July
Cucurbitaceae	Sosha	*Cucumis sativus* L.	Clim	VC	Apr-Sep
Cucurbitaceae	Misti kumra	*Cucurbita maxima* Duch.	Clim	VC	Mar-Aug
Cucurbitaceae	Misti kumra	*Cucurbita pepo* DC.	Clim	VC	Mar-Aug
Cucurbitaceae	Korola	*Momordica charantia* L.	Clim	C	May-Aug
Cucurbitaceae	Kakrol	*Momordica dioica* Roxb.	Clim	C	July-Dec
Cucurbitaceae	Lau	*Lagenaria siceraria* (Molina) Standl.	Clim	VC	Feb-Apr
Cucurbitaceae	Jhinga	*Luffa acutangula* (L.) Roxb.	Clim	C	Apr-Sep
Cucurbitaceae	Chichinga	*Trichosanthes anguina* L.	Clim	C	Apr-Jun
Cucurbitaceae	Potol	*Trichosanthes dioica* Roxb.	Clim	C	Apr-Aug
Cuscutaceae	Shorno lota	*Cuscuta reflexa* Roxb.	Clim	C	Aug-Dec
Dilleniaceae	Chalta	*Dillenia indica* L.	Tree	R	May-Oct
Ebenaceae	Bangab	*Diospyros montana* Roxb.	Tree	VR	May-Jul
Ebenaceae	Gab	*Diospyros peregrina* (Gaertn.) Gur.	Tree	C	May-Jul
Ebenaceae	Bilatigab	*Diospyros philippensis* (Des.) Gur.	Tree	C	May-Jul
Elaeocarpaceae	Jolpai	*Elaeocarpus robustus* Roxb.	Tree	C	Mar-June
Euphorbiaceae	Mukta jhuri	*Acalypha indica* L.	Herb	VC	June-Der
Euphorbiaceae	Lotkon	*Baccaurea ramiflora* Lour.	Tree	C	June-Aug
Euphorbiaceae	Patabahar	*Codiaeum variegatum* (L.) Blume.	Shrub	VC	Jan-Dec
Euphorbiaceae	Croton	*Croton bonplandium* Baill	Herb	VC	Jan-Dec
Euphorbiaceae	Dudhiya	*Euphorbia hirta* L.	Herb	VC	Jan-Dec
Euphorbiaceae	Jamalgota	*Jatropha curcas* L.	Shrub	C	May-Oct
Euphorbiaceae	Horiphal	*Phyllanthus acidus* (L.) Skeels.	Tree	C	Jan-Dec
Euphorbiaceae	Amloki	*Phyllanthus emblica* L.	Tree	C	Mar-May
Euphorbiaceae	Pitali	*Trewia polycarpa* Benth.	Tree	C	Jan-Dec
Fabaceae	Palas	*Butea monosperma* (Lam.) Kunt.	Tree	C	Feb-Apr
Fabaceae	Arhor daal	*Cajanus cajan* (L.) Mill.	Shrub	C	Dec-Mar
Fabaceae	Oporajita	*Clitoria tarnetea* L.	Clim	C	June-Dec
Fabaceae	Sishu	*Dalbergia sissoo* Thumb.	Tree	C	Mar-May
Fabaceae	Shim	*Lablab purpureus* (L.) Sweet.	Clim	C	Nov-Feb
Fabaceae	Bon kheshari	*Lathyrus hirsutus* L.	Herb	C	Jan-Mar
Fabaceae	Kheshari	*Lathyrus sativus* L.	Herb	C	Jan-Mar
Fabaceae	Musur	*Lens culinaris* Medik.	Herb	C	Jan-Dec
Fabaceae	Mashkalai	*Vigna mungo* (L.) Hepper	Herb	C	Nov-Jan
Fabaceae	Borbote	*Vigna sinensis* (L.) Endl.	Clim	C	Apr-Jun
Liliaceae	Piyaj	*Alium cepa* L.	Herb	C	Feb-Apr
Liliaceae	Rosun	*Alium sativum* L.	Herb	C	Feb-Apr
Liliaceae	Shotomuli	*Asparagus racemosus* L.	Clim	C	Jan-Dec
Lauraceae	Tejpata	*Cinnamomum tamala* (Buch.-Ham.) T. Nees & Eberm	Tree	R	Feb-July
Lauraceae	Pepulte	*Litsea monopetala* (Roxb.) Pers.	Shrub	R	Mar-Sep
Lythraceae	Mehedi	*Lawsonia alba* L.	Shrub	C	Jun-Oct
Lemnaceae	Khudi pana	*Lemna perpusilla* Torr.	Herb	C	Jan-Dec
Lamiaceae	Babuitulsi	*Ocimum basilicum* L.	Shrub	C	Jan-Dec
Lamiaceae	Tulsi	*Ocimum sanctum* L.	Shrub	C	Jan-Dec
Magnoliaceae	Champa	*Michelia champaka* L.	Tree	R	Mar-Ma
Moringaceae	Sojna	*Moringa oleifera* Lamk.	Tree	VC	Jan-May
Musaceae	Kola	*Musa sapientum* L.	Shrub	VC	Jan-Dec
Malvaceae	Dherosh	*Abelmoschus esculentus* (L.) Moench.	Herb	VC	Feb-Apr
Malvaceae	Joba	*Hibiscus rosa-sinensis* L.	Shrub	VC	Jan-Dec
Meliaceae	Pitraaj	*Aphanamixis polystachya* Wall.	Tree	VC	Feb-April
Meliaceae	Nim	*Azadirachta indica* A. Juss.	Tree	VC	Mar-May

Family name	Local name	Scientific name	Habit	Status of occurrence	Flowering time
Meliaceae	Ghora neem	*Melia sempervirens* Sw.	Tree	C	Mar-May
Meliaceae	Mehogoni	*Swietenia mahagoni* (L.) Jacq.	Tree	C	Apr-Sep
Mimosaceae	Akas moni	*Acacia auriculiformis* A. Cunn. ex Benth.	Tree	VC	Jan-Dec
Mimosaceae	Khair	*Acacia catechu* (L.f.) Willd.	Tree	C	Apr-Aug
Mimosaceae	Babla	*Acacia nilotica* L.	Tree	C	Apr-Aug
Mimosaceae	Silkoroi	*Albizia lucida* (Roxb.) Benth.	Tree	C	Jan-Dec
Mimosaceae	Koroi	*Albizia procera* (Roxb.) Benth.	Tree	C	May-Dec
Mimosaceae	Lojjaboti	*Mimosa pudica* L.	Herb	C	Sep-Nov
Moraceae	Dewa	*Artocarpus lacucha* Roxb.	Tree	R	Apr-June
Moraceae	Bot	*Ficus benghalensis* L.	Tree	C	May-Jul
Moraceae	Khoksha	*Ficus hispida* L.f.	Tree	VC	Apr-Aug
Moraceae	Lota dumor	*Ficus pumila* L.	Clim	C	May-Oct
Moraceae	Jagdumur	*Ficus racemosa* L.	Tree	C	Mar-May
Moraceae	Pakur	*Ficus religiosa* L.	Tree	C	July-Oct
Molluginaceae	Gimashak	*Glinus oppositifolius* (L.) Aug. DC	Herb	C	Jan-Dec
Myrtaceae	Eucalyptus	*Eucalyptus citrodora* Hook.	Tree	C	Jan-Dec
Myrtaceae	Peyara	*Psidium guajava* L.	Tree		Jan-Dec
Myrtaceae	Jam	*Syzygium cumini* (L.) Skeels.	Tree	VC	Mar-Apr
Myrtaceae	Khudijam	*Syzygium fruticosum* (Roxb.) DC	Tree	C	Mar-Apr
Myrtaceae	Jamrul	*Syzygium samarangense* Merr. & Perr.	Tree	C	Feb-Mar
Nyctaginaceae	Punarnava	*Boerhaavia repens* L.	Clim	C	Jan-Dec
Nyctaginaceae	Bagan bilash	*Bouganvillea spectabilis* Willd.	Clim	C	Jan-Dec
Nyctaginaceae	Sondha maloti	*Mirabilis jalapa* L.	Herb	C	Jan-Dec
Najadaceae	Najas	*Najas graminea* Delile.	Herb	C	Jan-Dec
Nymphaeaceae	Shapla	*Nymphaea nouchali* Burm. f.	Herb	C	Jun-Aug
Oxalidaceae	Kamranga	*Averrhoa carambola* L.	Tree	C	Sep-Jan
Oleaceae	Beli	*Jasminum pubescens* Willd.	Shrub	C	Jan-Dec
Onagraceae	Kesardam	*Jussiaea repens* L.	Herb	C	Jan-Dec
Papaveraceae	Sheyal kata	*Argemone maxicana* L.	Herb	VC	Feb-May
Poaceae	Tollabans	*Bambusa tulda* Roxb.	Tree	C	Jan-Dec
Poaceae	Gom	*Triticum aestivum* L.	Herb	VC	Jan-Dec
Poaceae	Vutta	*Zea mays* L.	Herb	C	Mar-May
Poaceae	Aakh	*Saccharum officinarum* L.	Shrub	VC	Jan-Dec
Poaceae	Kash	*Saccharum spontaneum* L.	Shrub	C	June-July
Poaceae	Kaon	*Setaria glauca* (L.) Beauv.	Herb	C	Jan-Dec
Poaceae	Gohur	*Oplismenus compositus* (L.) P.Beauv.	Herb	VC	Jan-Dec
Poaceae	Dhan	*Oryza sativa* L.	Herb	VC	July-Sep
Poaceae	Premkata	*Chrysopogon aciculatus* (Retz.) Trin.	Herb	VC	Jan-Dec
Portulacaceae	Baranunia	*Portulaca oleracea* L.	Herb	C	May-July
Portulacaceae	Choto nunia	*Portulaca quadrifida* L.	Herb	C	Jan-Dec
Polygonaceae	Bon Palong	*Rumex maritimus* L.	Herb	C	July-Aug
Polygonaceae	Chuka palong	*Rumex vesicarius* L.	Herb	C	July-Aug
Pedaliaceae	Til	*Sesamum indicum* L.	Herb	C	Feb-June
Punicaceae	Dalim	*Punica granatum* L.	Shrub	C	Jan-Aug
Piperaceae	Peperomia	*Peperomia pellucida* Kunth.	Herb	C	Jan-Dec
Pontederiaceae	Kachuri pana	*Eichhornia crassipes* (Mart.) Solms.	Herb	C	Jan-Dec
Rhamnaceae	Boroi	*Zizyphus mauritiana* Mill.	Tree	VC	Sep-Jan
Rosaceae	Golap	*Rosa centifolia* L.	Shrub	C	Jan-Dec
Rubiaceae	Gondhoraj	*Gardenia jasminoides* Ellis.	Shrub	C	Mar-May
Rubiaceae	Kodom	*Anthocephalus chinensis* (Lamk.) Rich. ex Walp	Tree	C	May-July
Rubiaceae	Rongon	*Ixora coccinia* L.	Shrub	C	Jan-Dec
Rubiaceae	Gandhabhaduli	*Paederia foetida* L.	Clim	C	Jan-Dec
Rutaceae	Bel	*Aegle marmelos* (L.) Corr.	Tree	C	Apr-Aug
Rutaceae	Lebu	*Citrus aurantifolia* L.	Tree	VC	Mar-Sep
Rutaceae	Jambura	*Citrus grandis* (L.) Osbeck.	Tree	C	Feb-Apr

Family name	Local name	Scientific name	Habit	Status of occurrence	Flowering time
Rutaceae	Goralebu	*Citrus limon* (L.) Brum.f.	Shrub	C	June-Dec
Rutaceae	Kothbel	*Feronia elephantum* (L.) Sw.	Tree	C	Feb-Aug
Rutaceae	Ashshaora	*Glycosmis pentaphylla* Retz.	Shrub	VC	Apr-Oct
Rutaceae	Atishora	*Glycosmis arborea* Retz.	Shrub	VC	Apr-Oct
Rutaceae	Kamini	*Murraya paniculata* (L.) Jack.	Shrub	C	Mar-Oct
Sapindaceae	Lichu	*Litchi chinensis* Sonn.	Tree	C	Apr-May
Sapotaceae	Sofeda	*Manilkara zapota* (L.) P. Royen.	Tree	C	Jan-Dec
Sapotaceae	Bokul	*Mimusops elengi* L.	Tree	C	Mar-Apr
Sterculiaceae	Ulat kambal	*Abroma augusta* L.	Shrub	VR	June-Oct
Scrophulariaceae	Brammi shak	*Bacopa monnieri* (L.) Pennel.	Herb	R	June-Aug
Solanaceae	Morice	*Capsicum frutescens* L.	Herb	C	Jan-Dec
Solanaceae	Hasna hena	*Cestrum nocturnum* L.	Shrub	C	Jan-Dec
Solanaceae	Dhutura	*Datura metel* L.	Shrub	C	Jan-Aug
Solanaceae	Tometo	*Lycopersicon lycopersicum* (L.) Karsten	Herb	VC	Jan-Dec
Solanaceae	Bontamak	*Nicotiana plumbaginifolia* Viv.	Herb	C	Mar-Nov
Solanaceae	Kopal fotka	*Physalis minima* L.	Herb	C	Jan-Dec
Solanaceae	Titbegun	*Solanum filisifolium* Ort.	Shrub	C	Jan-Dec
Solanaceae	Phutki	*Solanum indicum* L.	Herb	C	Oct-Feb
Solanaceae	Begun	*Solanum melongena* L.	Shrub	C	Oct-Feb
Solanaceae	Gol-alu	*Solanum tuberosum* L.	Herb	C	Oct-Feb
Tiliaceae	Deshipat	*Corchorus capsularis* L.	Shrub	VC	Mar-June
Verbenaceae	Bhat	*Clerodendrum viscosum* L.	Shrub	VC	Jan-May
Verbenaceae	Choita	*Lantana camara* L.	Shrub	VC	Jan-Dec
Verbenaceae	Sheuli	*Nyctanthes arbortristis* L.	Tree	C	Oct-Feb
Vitaceae	Harjora	*Vitis quadrangularis* Wall.	Clim	C	June-Janu
Zingiberaceae	Holud	*Curcuma longa* L.	Herb	C	Mar-Oct
Zingiberaceae	Ada	*Zingiber officinale* Rosc.	Herb	C	Mar-Aug

Jan = January, Feb = February, Mar = March, Apr = April, Ma = May, Jun = June , Jul = July, Aug = August, Sep = September, Oct = October, Nov = November, Dec = December, Clim = Climber, VC = Very Common, C = Common, R = Rare, VR = Very rare.

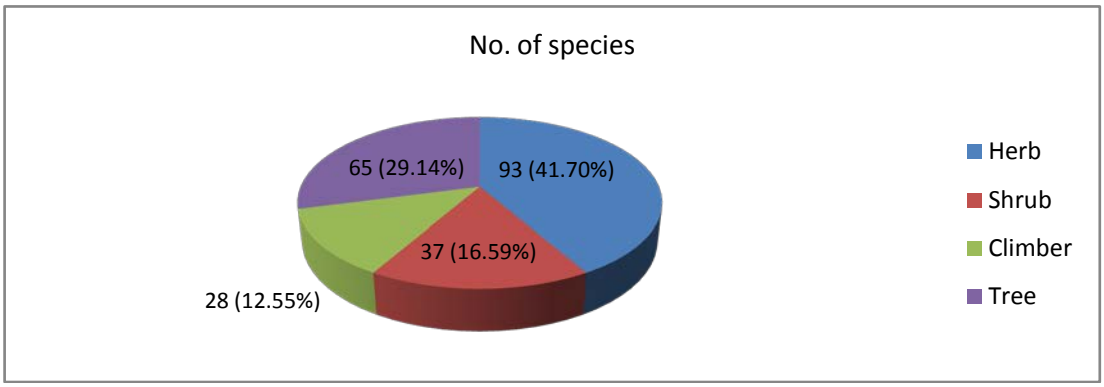

Figure 1. Habit diversity was recorded

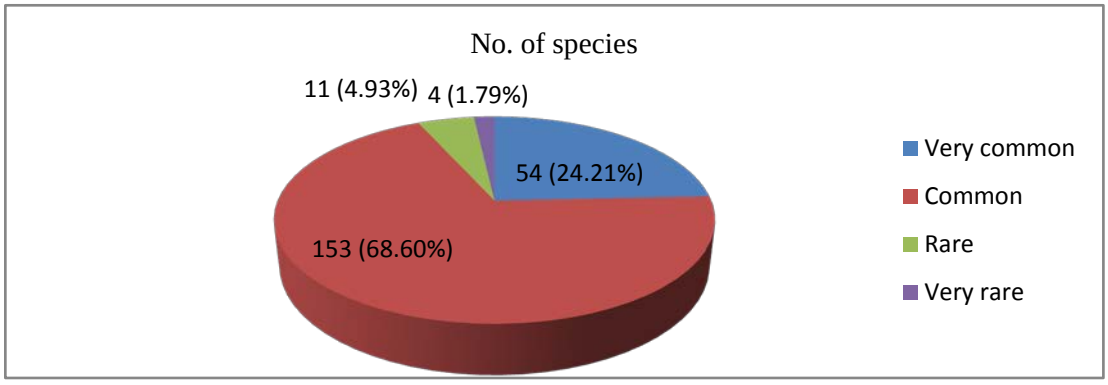

Figure 2. Status of occurrence was recorded in the study area

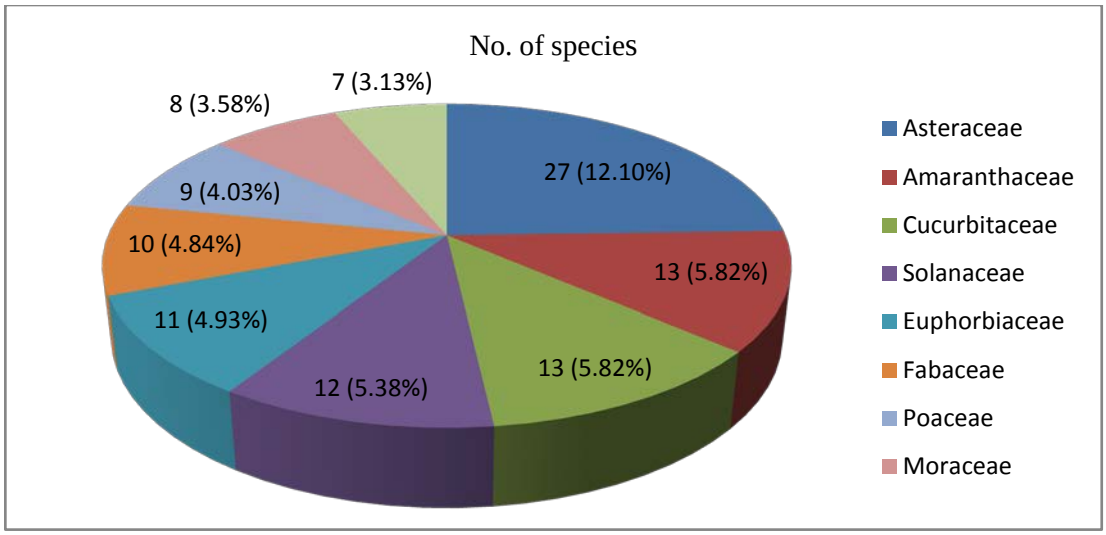

Figure 3. Plant families were dominant in the study area

A total of 223 species belonging to 176 genera under 74 families were recorded. Of the total number of species, *Abelmoschus esculentus, Acacia auriculiformis, Ageratum conyzoides, Alternanthera sessilis, Alternanthera philoxeroides, Amaranthus spinosus, Amaranthus tricolor, Amaranthus viridis, Areca catechu, Argemone mexicana, Artocarpus heterophyllus, Azadirachta indica, Bambusa tulda, Basella alba, Bryophyllum pinnatum, Calotropis procera, Carrica papaya, Catharanthus roseus, Centella asiatica, Chenopodium ambrosioides, Citrus aurantifolia, Clerodendrum viscosum, Coccinia grandis, Cocos nucifera, Colocasia esculenta, Commelina benghalensis, Coriandrum sativum, Croton bonplandianum, Cynodon dactylon, Dendropthoe falcata, Dopatrium junceum, Eucalyptus citrodora, Euphorbia hirta, Ficus hispida, Fumaria indica, Heliotropium indicum, Hibiscus rosa-sinensis, Isachne globosa, Lagenaria sicararia, Lawsonia inermis, Leucas aspera, Leucas lavandulifolia, Lycopersicon esculentum, Mangifera indica, Mimosa pudica, Monochoria hastata, Musa sapientum, Parthenium hysterophorus, Pepromia pellucida, Phoenix sylvestris, Phyllanthus reticulatus, Persicaria hydropiper, Persicaria orientale, Psidium guajava, Rosa centifolia, Scorparia dulcis, Sesbania canabina, Solanum nigrum, Spilanthes calva, Stephania japonica, Syzygium cumini,, Trapa bispinosa, Xanthium indicum, Zizyphus mauritiana* were recorded as very common; *Abroma augusta, Acacia nilotica, Achras zapota, Aegle marmelos, Aerva sanguinolenta, Albizia procera, Achyranthes aspera, Allium cepa, Allium sativum, Aloe vera, Alstonia scholaris, Amaranthus dubius, Annanas sativus, Andrographis paniculata, Anthocephalus chinensis, Aphanamixi polystachya, Averrhoa carambola, Baccaurea ramiflora, Benincasa hispida, Bombax ceiba, Borassus flabellifer, Brassica napus, Brassica oleracea* var.*botrytis, Brassica oleracea* var. *capitata, Cajanus cajan, Capsicum frutescens, Canna indica, Senna alata, Cassia fistula, Senna sophera, Cestrum nocturnum, Chrozophora rottleri, Citrus grandis, Clerodendrum inerme, Commelina longifolia, Corchorus capsularis, Cucurbita maxima, Curcuma longa, Cuscuta reflexa, Cyanotis axillaris, Cyperus tegetiformis, Dalbergia sissoo, Delonix regia, Diospyros malabarica, Duranta repens, Eclipta alba, Euphorbia thymifolia, Elaeocarpus robustus, Epipremnum aureum, Ficus benghalensis, Ficus religiosa, Gardenia jasminoides, Glinus oppositifolius, Gossypium harbaceum, Hibiscus mutabilis, Herpestis chamaedroides, Hydrolea zeylanica, Imperata cylindrica, Ipomoea alba, Ipomoea aquatica, Ipomoea batatus, Ipomoea fistulosa, Ipomoea quamocli, Ixora coccinia, Justicia gendarusa, Kalanchoe blossfeldiana, Lablab purpureus, Lagerstroemia speciosa, Lannea coromandelica, Lemna perpusila, Leucas cephalotes, Limonia acidissima, Litchi chinensis, Ludwigia adscendens, Manikara achras, Microcos paniculata, Michelia champaca, Mimusops elengi, Mirabilis jalapa, Moringa oleifera, Nelumbo nucifera, Nicotiana plumbaginifolia, Nyctanthes arbor-tristis, Nymphaea nouchali, Nymphoides indicum, Ocimum americanum, Oryza sativa, Oxalis corniculata, Physalis minima, Phyllanthus urinaria, Polyalthia longifolia, Portulaca oleracea, Pouzolzia zeylanica, Polycarpon prostratum, Punica granatum, Raphanus sativus, Saccharum officinarum, Saccharum spontaneum, Senna tora, Sesamum indicum, Sida cordifolia, Solanum ferox, Solanum melongena, Solanum surattense, Solanum tuberosum, Spondius pinnata, Swietenia mahagoni, Syzygium jambos, Syzygium samarangense, Tabernaemontana divaricata, Tagetes erecta, Tagetes patula, Tamarindus indica, Terminalia arjuna, Terminalia chebula, Trichosanthes arguina, Typhonium trilobatum, Vitis trifolia* as common; *Amaranthus lividus, Annona squamosa, Arachis hypogea, Ardisia paniculata, Artocarpus lacucha, Asparagus racemosus, Barringtonia acutangula, Bergia ammannioides, Bougainvillea spectabilis, Cannabis sativa, Calotropis gigantea, Carissa carandas, Celosia cristata, Chenopodium album, Chrysanthamum coronarium, Cinnamomum tamala, Cleome viscosa, Clitoria tarnetea, Coix lacryma, Cucumis melo, Cucumis sativus, Cyathula capitata, Cyanotis cristata, Datura metel, Dendropthoe falcata, Drosera burmannii, Digeria arvensis, Exacum pedunculatum, Euphorbia pulcherrima, Ficus racemosa, Gmelina arborea, Helianthus annuus, Impatiens balsamina, Jasminum grandiflorum, Jatropha gossypifolia, Jatropha integerrima, Justicia adhatoda, Kalanchoe lacinata, Kyllinga monocephala, Leucas lavandulifolia, Litsea monopetala, Luffa acutangula, Luffa cylindrica, Mentha arvensis, Messua nagassarium, Momordica charantia,*

Momordica cochchinensis, Morinda citrifolia, Morus nigra, Mukia maderaspatana, Murraya paniculata, Nerium indicum, Ocimum sanctum, Passiflora edulis, Piper betle, Pisonia aculeata, Persicaria barbatum, Polygonum plebejum, Pyrus communis, Rananculus scleratus, Ricinus communis, Spathodea campanulata, Spondius purpurea, Streblus asper, Tabebuia aurea, Tabernaemontana coronaria, Tectona grandis, Terminalia catappa, Vandellia multiflora, Vigna sinensis , Vitex negundo, Vitis vinifera, Zea mays, Zingiber officinale were recorded as rare and *Alternanthera paronychioides, Cinnamomum verum, Dillenia indica, Diospyros montana, Diospyros philippensis, Erythrina variegata, Leonuros sibiricus, Solanum torvum, Trichosanthes dioica, Vigna mungo* were recorded as very rare species in the study area (Table 1).

The recorded angiospermic flora is comparable with the results of other studies in Bangladesh. A total of 223 species belonging to 176 genera under 74 families were recorded (Table 1). The collected information is comparable with the result of other studies in Bangladesh. A total of 243 species belonging to 195 genera under 95 families were recorded in Khagrachhari district [22]. A total of 374 species belonging to 264 genera under 84 families were recorded in Lawachara National Park [23]. A total of 153 species belonging to 120 genera under 52 families were recorded in Runctia Sal Forest [24]. A total of 245 species belonged to 183 genera and 72 families are documented in Habiganj district [25]. A total of 302 species belonging to 243 genera 84 families are recorded in Bangladesh Police Academy, Rajshahi [10]. The present paper recorded on the preliminary assessment of angiospermic plant species in and around Rajshahi Metropolitan city, Bangladesh.

4. Conclusion

A preliminary assessment of angiosperms in and around Rajshahi metropolitan city, Bangladesh was recorded. A total of 223 species belonging to 176 genera under 74 families were recorded. Distribution of angiosperm plant species in the families shows variation. Asteraceae is represented by 27 species. Cucurbitaceae is represented by 13 species. Fabaceae is represented by 10 species. Each of Euhorbiaceae, Solanaceae and Poaceae is represented by 9 species. Amaranthaceae is represented by 8 species. Lamiaceae is represented by 7 species. A single species is represented by 38 families while 2 to 6 species is represented by 29 families. The following species are found rarely distributed in the study area *Abroma augusta* L., *Aphanamixis polystachya* Wall., *Asparagus racemosus* L., *Bixa orellana* L., *Baccaurea ramiflora* Lour., *Bacopa monnieri* (L.) Pennel., *Celosia cristata* L., *Cyathula prostrata* (L.) Blume., *Diospyros montana* Roxb., *Dillenia indica* L., *Enhydra fluctuans* Lour., *Glinus oppositifolius* (L.) Aug. DC., *Litsea monopetala* (Roxb.) Pers., *Paederia foetida* L., *Rumex vesicarius* L. and *Terminalia bellirica* (Gaertn.) Roxb. All collected specimens were studied, identified and have been lodged in the Herbarium, Department of Botany, University of Rajshahi, Bangladesh.

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Conflict of Interest

The author declares that there are no conflicts of interests.

Data and Materials Availability

All data associated with this study are presented in this paper.

Peer Review

External peer-review was done through double-blind method.

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Photographs of important species in the study area

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