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A PRELIMINARY STUDY OF THE PTERIDOPHYTES, GYMNOSPERMS AND MONOCOTYLEDONS IN THE CHAPAINAWABGANJ DISTRICT'S FLORA OF BANGLADESH

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Abstract

This study demonstrates that the vascular flora (Pteridophytes, Gymnosperms, and Monocotyledons) of the Chapainawabganj district area consists of 247 species with two subspecies under 126 genera and 35 families. The pteridophytes and gymnosperms are represented by 19 and four species, respectively, whereas the monocotyledons (Liliopsida) are represented by 224 species. Poaceae, with 91 species, representing 36.84% of the flora, appears to be the largest family, followed by Cyperaceae 32, Araceae 19, Asparagaceae 12, and Arecaceae 11, which collectively constitute ca. 30% of this flora. *Cyperus*, comprising 18 species, is recorded as the largest genus, followed by *Fimbristylis*, *Digitaria*, *Panicum*, *Bambusa*, *Urochloa*, *Dracaena*, and *Dioscorea*. About 87.55% of this flora's taxa are herbs, 4.42% are palms, 3.61% are shrubs, and the rest are bamboos and trees. Erect herbs, forming 61.04% of the flora, comprise the most common life form. In this flora, almost 74.30% of the taxa are native, and the rest, 25.70%, are exotic. It is found that nearly 74.70% of the taxa are wild, 14.06% are planted, and 11.24% are cultivated. About 23.29% of taxa commonly occur throughout all upazilas in this district. Most of the species are harboured in fallow lands, roadsides, gardens, and homesteads. All species of this district's flora are known to be economically useful. Most of its habitats and ecosystems are exposed to different threats. Adequate measures with effective management plans should be adopted and implemented for the sustainable use, improvement, and conservation of this precious flora.

Introduction

The basis for understanding biological diversity is laid by taxonomic studies, which provide crucial, important, and practical information on the identification, composition, distribution, dispersal, origin, variation, categorization, and relationships of biodiversity. A classical taxonomic study of plants provides the basic and adequate understandings of this biological entity found within a geographical region, a political or administrative area, an ecosystem, or a habitat, which are necessary for the characterization and sustainable use of plant resources, guiding resource-based development, and resolution of various plant relevant environmental issues. Despite the fact that the angiospermic flora of Bangladesh is thought to be rich, with an estimated 5000 species (Khan, 1977), it has been incompletely inventoried through a variety of sporadic or focused taxonomic studies carried out since 1814 (Roxburgh, 1814) to the present day (Hooker, 1872–1897; Prain, 1903; Siddiqui *et al*., 2007; Ahmed *et al*., 2008–2009; Ahmed *et al*., 2009; Rahman *et al*., 2015; Haque *et al*., 2018; Uddin and Hassan, 2018; Khanam and Khan, 2020; Khanam *et al*., 2020; Roy and Khan, 2020a, 2020b; Hossain *et al*., 2021; Khan *et al*., 2021). As a result, the floristic compositions in many areas of this country are either unknown or inadequately known, and the updated taxonomic knowledge of many plant groups in this country is lacking.

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The district of Chapainawabganj, located in northwest Bangladesh, is composed of five upazilas and 45 unions, covering a total area of 1702.54 km^2. It is situated between longitudes 88°01' and 88°30' east and latitudes 24°25' and 24°58' north (District Statistics 2011 Chapainawabganj, 2013; SFD Lite Report 2022; Fig. 1). Chapainawabganj's geography is primarily flat, with an average elevation of 25 metres above sea level (https://elevation.maplogs.com). The majority of the land is made up of homestead gardens, croplands, scrub jungles, grasslands, and some wetlands. In the basins of the Ganges, Mahananda, Pagla, and Punarbhaba Rivers, the soil is primarily (80%) alluvial, with the remainder being barren (https://elevation.maplogs.com). It experiences summertime wet monsoons and humid subtropical conditions (Khatun *et al*., 2016; https://en.climate-data.org). The average annual rainfall is 1,542 to 1862 mm, and the mean temperature ranges from a minimum of 11.2°C to a maximum of 37.8°C (District Statistics 2011 Chapainawabganj, 2013; Khatun *et al*., 2016; SFD Lite Report 2022).

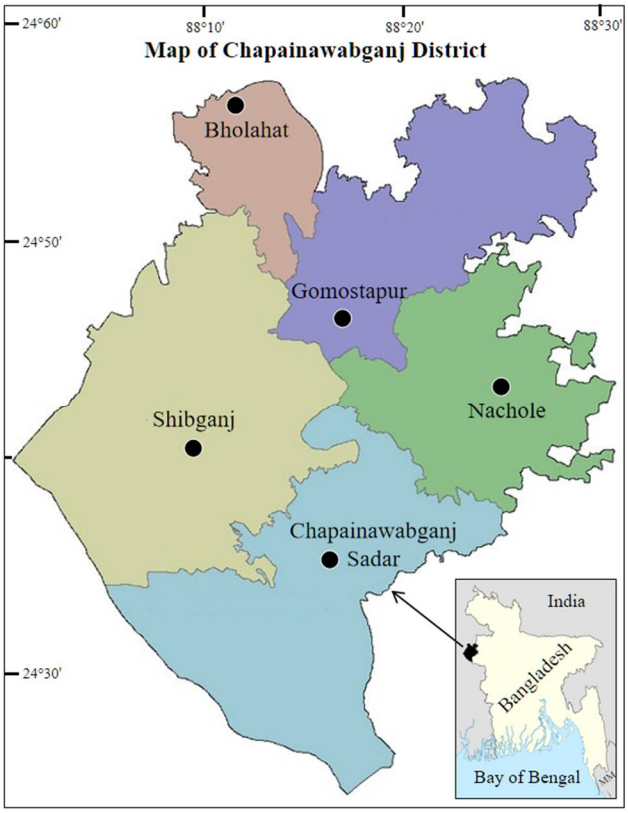

Fig. 1. Map of Chapainawabganj district with its five upazilas.

Some taxonomic studies on the flora of several districts of Bangladesh have been carried out (Sultana, 2012; Tabassum, 2015; Uddin and Hassan, 2018; Khanam and Khan, 2020; Khanam *et al*., 2020; Roy and Khan, 2020a, b; Hossain *et al*., 2021). However, any taxonomic literature on the flora of Chapainawabganj district based on field inventories throughout its entire geographical area is not known to have been published so far. A number of taxonomic investigations have been conducted on the flora of several districts of Bangladesh (Sultana, 2012; Tabassum, 2015; Uddin

and Hassan, 2018; Khanam and Khan, 2020; Khanam *et al*., 2020; Roy and Khan, 2020a, b; Hossain *et al*., 2021). However, no taxonomic study based on field inventories spanning the Chapainawabganj district's geographic area has hitherto been carried out. Taxonomic studies on the flora of Chapainawabganj district are necessary to enrich the baseline data on the floristic composition and plant species diversity of this country, especially of its north-western region, to explore the plant genetic resources of this area, to adopt and implement appropriate conservation initiatives for threatened or near-threatened species, and to support future research on the floristic composition, plant species diversity, and vegetation of this area. This study was conducted to generate baseline information on the current composition, status, distribution, and habitats of plant species in this area of Chapainawabganj district.

Materials and Methods

Field surveys were carried out following the walk-through method throughout each of the upazilas of Chapainawabganj during the different seasons of 2018–2021. All native and exotic species of vascular plants that are wild, planted, or cultivated have been included in this study. The plant specimens were collected, processed, dried, preserved, and identified following standard herbarium and taxonomic methods. Nomenclatural information was confirmed using the techniques outlined in Khan *et al.* (2021) and Hossain *et al*. (2021).

Every voucher specimen has been stored at the Herbarium of Jahangirnagar University (JUH). The families of monocotyledons are arranged following Pichi (1977), Kramer and Green (1990), and Cronquist (1988), respectively (Table 1). The APGIV System (Angiosperm Phylogeny Group, 2016) has been used to place the families that are not included in Cronquist (1988). The checklist (Table 1) includes only the accepted names that are currently in use today, along with recent synonyms. A review of pertinent literature and interviews with locals during field inventories were followed to gather information on the use of the plant species (Ghani, 1998; Van Valkenburg and Bunyapraphatsara, 2002; Siddiqui *et al*., 2007; Ahmed *et al*., 2008–2009; Ahmed *et al*., 2009). The Jaccard coefficient was used to determine how similar the species compositions of the five upazilas in the research area were (Jaccard, 1912). The rare and threatened plant species in the study area were recognised through field observation and estimation based on their population size, distribution range, and regeneration in the area.

Results and Discussion

In total, 249 taxa, including 247 species, and two subspecies of 126 genera, and 35 families of three plant groups, *viz.*, Pteridophytes, Gymnosperms, and Monocotyledons (Liliopsida), were found to grow within the administrative boundaries of the Chapainawabganj district. In this article, 247 species were taken into account for the taxonomic enumeration of the species, genus, and families, while information on 249 taxa was utilised to categorise the taxa according to their habitat, habit, distribution, and economic applications. Pteridophytes consist of 19 species under 13 genera, and 7 families make up 7.63% of the species in this district flora, excluding the dicotyledons. Gymnosperms, grouped into four genera and three families, comprised only 1.61% of the species. The monocotyledons, or Liliopsida, made up of 226 taxa under 110 genera and 25 families, comprised 90.76% of the species in the three plant groups of this district flora (Table 1 and Fig. 1).

The taxa of three plant groups, growing in this district comprised 218 (87.55%) herbs, 11 (4.42%) palms, nine (3.61%) shrubs, eight (3.21%) bamboos, and a meagre three (1.21%) trees. The most common pattern of plant growth found in the district's flora was the erect, which accounted for 61.45% (153 taxa) of the flora and 70.18% of the herbaceous taxa. There were

different kinds of herbaceous taxa, including vine (18 species), prostrate (15 species), creeper (10 species), free-floating (7 species), emergent (4 species), submerged (4 species), and epiphyte (3 species). Most of the flora of the Chapainawabganj district (74.30%) was found to be made up of native taxa (185). Nonetheless, 64 exotic taxa account for a sizable part (25.70%) of this flora. A total of 186 taxa, or 74.70% of the flora, were found in the wild, while 35 species, or 14.06%, were found to be planted, and 28 species, or 11.24%, were found to be cultivated. With five species, the Pteridaceae family was the largest in Pteridophyta. Aspleniaceae and Polypodiaceae, with four and three species each, were the next largest families. There were one or two species in each of the remaining families. The genera *Adiantum* L., *Pteris* L., *Lygodium* Sw., and *Marsilea* L. each had two species, while the remaining genera were each made up of one species. The genus Thelypteris Schmidel contained three species. Gymnospermae species were found in one or two families and one species in each of their genera, with the exception of *Cycas* L., which was found to be represented by two species. Species of Pteridophyte were all herbs that grew naturally, while three species of Gymnosperm were trees, and one was a shrub, all of which were planted.

In the Liliopsida (monocotyledons), Poaceae, with 91 taxa belonging to 45 genera, was the largest family, accounting for 36.55% of the Chapainawabganj district's vascular flora, excluding the dicotyledons. Cyperaceae, with 34 species of five genera; Araceae, with 19 species of 13 genera; Asparagaceae, with 13 species of five genera; and Arecaceae, with 11 species of 10 genera, were the next large families of Lilipsida in this district. These four families combined made up 34.07%, and the families Commelinaceae, Zingiberaceae, Dioscoriaceae, and Orchidaceae, each including fewer than 11 species, form only 11.06% of the district flora of these three plant groups (Fig. 2). The species names of seven taxa (2.8%) could not be validated because their voucher specimens lacked species-specific key characters, and therefore, only the generic names have been cited for these taxa.

With 18 species, *Cyperus* L. was the largest monocot genus. It was followed by *Fimbristylis* Vahl with nine species, *Digitaria* Haller, and *Panicum* L. with seven species, *Dracaena* Vand., *Bambusa* Schreb., *Dioscorea* L., and *Urochloa* P. Beauv. with six species,

Table 1. List of vascular plant species of Chapainawabganj district, Bangladesh.

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
PTERIDOPHYTA Schimp.						
Selaginellaceae Willk.						
1. *Selaginella ciliaris* (Retz.) Spring	Katagenella	Fl, Rs, Wl	H, er, w	Gm, Sd, Sg	M, Or, R	MSI-3447
Salviniaceae Martinov						
2. *Azolla pinnata* R.Br.	Lal khudipana	Wtl	H, ff, w	All upazilas	Ff, Gn, O	MSI-3448
3. *Salvinia cucullata* Bory	Indur kanipana	Wtl	H, ff, w	Sd, Sg	Aq, C	MSI-3449
Marsileaceae Mirb.						
4. *Marsilea minuta* L.	Soto Susmi shak	Fl, Wtl	H, pr, w	Gm	M, Gn, O	MSI-2962
5. *M. quadrifolia* L.*	Susmi shak	Fl, Wtl	H, pr, w	Sg	M, Gn, O	MSI-0411
Schizaeaceae Kaulf.						
6. *Lygodium flexuosum* (L.)Sw.	Saralata fern, Latadekhia	Fl, Rs, Sj	H, vi, w	Gm, Na, Sg	M, O	MSI-1156
7. *L. microphyllum* (Cav.) R.Br.	Lata fern	Fl, Rs, Sj	H, vi, w	Sg	M, R	MSI-2986
Pteridaceae E.D.M.Kirchn.						
8. *Adiantum capillus-veneri*s L.	Venichadda	Bw, Rs, Gr	H, er, w	Gm, Sd, Sg	M, Ed, R	MSI-3453
9. *A. philippense* L.	Kalijhat	Bw, Gr,Ml	H, pr, w	Sd, Sg	M, R	MSI-2455
10. *Ceratopteris thalictroides* (L.) Brongn.	Pani lettuce	Fl, Wtl	H, er, w	Gm, Sd, Sg, Vh	M, Ed, O	MSI-3450

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
11. *Pteris ensiformis* Burm.f.	Slender Braken	Fl, Sj	H, vi, w	Vh	M, Or, R	MSI-0820
12. *P. vittata* L.	Dhekishak	Fl, Bw	H, vi, w	Sg, Vh	M, Ed, O	MSI-0160
Polypodiaceae J. Presl & C. Presl						
13. *Drynaria quercifolia* (L.)J.Sm.	Pankhiraj	Op	H, ep, w	All upazilas	M, O	MSI-3452
14. *Microsorum punctatum* (L.) Copel.	Gucha patra	Op	H, ep, w	All upazilas	M, Ed, O	MSI-3454
15. *Pyrrosia glabra* (Desv.) Fraser-Jenk.; Syn: *Pyrrosia nuda* (Giesenh.) Ching	Jihba fern	Op	H, ep, w	Sd, Sg	Or, R	MSI-3451
Aspleniaceae Newman						
16. *Diplazium esculentum* (Retz.) Sw.	Dhekishak	Fl, Sj	H, vi, w	Sd	Vg, O	MSI-0387
17. *Thelypteris arida* (D.Don) C.V.Morton; Syn: *Christella arida* (D.Don) Holttum	Dekishak	Fl, Hs, Rs	H, er, w	All upazilas	M, O	MSI-3456
18. *T. dentata* (Forssk.) E.P.St. John; Syn: *Christella dentata* (Forssk.) Brownsey & Jermy	Bish dhekia	Fl, Rs, Sj	H, vi, w	Sg	M , C	MSI-0131
19. *T. prolifera* (Retz.) C.F. Reed; Syn: *Ampelopteris prolifera* (Retz.) Copel.	Agacha dhekia	Fl, Ml, Rb	H,vi, w	All upazilas	Vg, R	MSI-1534
GYMNOSPERMAE Prantl						
Araucariaceae Henkel & W.Hochst.						
20. *Araucaria heterophylla* (Salisb.) Franco*	Christmas tree	Gr, Hs	T, l, pl	All upazilas	Or, R	MSI-3455
Cupressaceae Gray						
21. *Platycladus orientalis* (L.) Franco* Syn: *Thuja orientalis* L.	Thuja	Gr, Hs	Sh, m, pl	All upazilas	M, Or, R	MSI-3406
Cycadaceae Pers.						
22. *Cycas circinalis* L.*	Nali cycas	Gr, Hs	T, m, pl	Sd, Sg	M, Or, R	MSI-3383
23. *C. revoluta* Thunb.*	Volu cycas	Gr, Hs	T, m, pl	Sd, Sg	M, Or, R	MSI-3384
LILIOPSIDA Batsch						
Alismataceae Vent.						
24. *Sagittaria guayanensis* Kunth	Kauathukri	Wtl	H, fl, w	Sd, Sg	M, Lf, O	MSI-3321
25. *S. sagittifolia* L.*	Chhotokut	Wtl	H, em, w	Sd, Sg	M, O	MSI-0944
Hydrocharitaceae Juss.						
26. *Hydrilla verticillata* (L.f.) Royle	Kureli	Wtl	H, sm, w	Sd, Sg	M, Lf, C	MSI-0134
27. *Nechamandra alternifolia* (Roxb. ex Wight) Thwaites	Patasaola	Wtl	H, sm, w	Sg, Vh	Ff, R	MSI-2176
28. *Ottelia alismoides* (L.) Pers.	Panikala	Wtl	H, sm, w	Sg	M, Ff, C	MSI-2171
29. *Vallisneria spiralis* L.	Patseola	Wtl	H, sm, w	Sd, Sg, Vh	M, Ff, O	MSI-0136
Aponogetonaceae Planch.						
30. *Aponogeton appendiculatus* H.Bruggen	Ghechu	Wtl	H, er, w	Gm, Sd, Sg, Vh	Aq, Lf, O	MSI-3326
31. *Aponogeton crispus* Thunb.	Ghechu	Wtl	H, er, w	Gm, Sg	Aq, O	MSI-3343
32. *Aponogeton natans* (L.) Engl. & K.Krause	Ghechu	Wtl	H, er, w	All upazilas	Aq, O	MSI-3421
Potamogetonaceae Bercht. & J.Presl						
33. *Potamogeton nodosus* Poir.	Panipata	Wtl	H, em, w	Sd, Sg	M, O	MSI-1809
Arecaceae Bercht. & J.Presl						
34. *Areca catechu* L.*	Supari	Gr, Hs, Rs	Plm, l, pl	All upazilas	M, Fu, O	MSI-3393
35. *Borassus flabellifer* L.	Tal	Gr, Hs, Rs	Plm, l, pl	Sd, Sg	Fr, Fb, Fu, C	MSI-2509

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
36. *Calamus erectus* Roxb.	Kadambet	Gr, Rb, Sj	Plm, cl, w	Na, Sd, Sg	M, Fb, Fr, O	MSI-3381
37. *C. tenuis* Roxb.	Jalibet	Gr, Rb, Sj	Plm, cl, w	Na, Sd, Sg	M, Fb, O	MSI-3380
38. *Chrysalidocarpus lutescens* H.Wendl.* Syn: *Dypsis lutescens* (H.Wendl.) Beentje & J.Dransf.	Areca Plm	Gr, Hs	Plm, s, pl	Gm, Sd	Or, R	MSI-3357
39. *Cocos nucifera* L.	Narikel	Gr, Hs, Ml	Plm, l, pl	All upazilas	M, Ol, Fb, C	MSI-3349
40. *Elaeis guineensis* Jacq.*	Oil palm	Gr, Ml	Plm, l, pl	Na, Sd, Sg	Ol, R	MSI-1778
41. *Livistona chinensis* (Jacq.) R.Br. ex Mart.	China palm	Gr, Rs	Plm, m, pl	Sg	M, R	MSI-3388
42. *Phoenix sylvestris* (L.) Roxb.	Khejur	Hs, Ml, Rs	Plm, l, w	Gm, Sd, Sg	M, Fr, C	MSI-3369
43. *Rhapis excelsa* (Thunb.) A.Henry*	Gurital, lady palm	Gr	Plm, s, pl	Sd	M, Or, R	MSI-3408
44. *Roystonea regia* (Kunth) O.F.Cook*	Botol palm	Gr, Rs	Plm, l, pl	Sd	Or, Ol, R	MSI-3410
Pandanaceae R.Br.						
45. *Benstonea foetida* (Roxb.) Callm. & Buerki; Syn: *Pandanus foetidus* Roxb.	Keya	Gr, Hs	Sh, pl	Sd, Sg	M, Fu, R	MSI-3405
46. *Pandanus amaryllifolius* Roxb. ex Lindl.*	Polao pata	Hs	Sh, pl	All upazilas	Sp, R	MSI-3404
Araceae Juss.						
47. *Aglaonema commutatum* Schott*	Silver Bay	Gr, Hs	H, er, pl	Gm, Sd, Sg	M, Pd, R	MSI-3327
48. *Alocasia acuminata* Schott	Bish kachu	Fl, Hs, Rs,	H, er, w	All upazilas	M, R	MSI-3337
49. *A. decipiens* Schott	Pai kachu	Hs, Rs, Sj	H, er, w	Gm, Na, Sd	M, R	MSI-3329
50. *A. fornicata* (Kunth) Schott	Salu kachu	Hs, Rs, Sj	H, er, w	Sd, Sg, Vh	M, R	MSI-3375
51. *A. macrorrhizos* (L.) G.Don	Man kachu	Ag, Hs	H, er, cv	All upazilas	M, Vg, O	MSI-2472
52. *Amorphophallus bulbifer* (Schott) Blume	Jongle Ol	Hs, Sj	H, er, w	Gm, Sd, Sg, Vh	M, Vg, O	MSI-3340
53. *Amorphophallus paeoniifolius* (Dennst.) Nicolson	Ol kachu	Ag, Hs	H, er, cv	All upazilas	M, Vg, O	MSI-3342
54. *Caladium bicolor* (Aiton) Vent.*	Bahari kochu	Gr, Hs	H, er, w	All upazilas	M, Or, R	MSI-3347
55. *Colocasia esculenta* (L.) Schott	Jangli kachu	Fl, Hs, Wtl	H, er, w	Sd, Sg, Vh	M, Vg, C	MSI-1623
56. *Dieffenbachia seguine* (Jacq.) Schott*	Diffenbachia, Segubet	Fl, Gr, Hs	H, er, w	Gm, Sd, Sg	M, R	MSI-3355
57. *Epipremnum aureum* (Linden & André) G.S.Bunting* Syn: *Scindapsus aureus* (Linden & André) Engl.	Money plant	Gr, Hs, Wl	H, cl, w	All upazilas	Or, O	MSI-0806
58. *Lemna minor* L.	Soto pana, Suji pana	Wtl	H, ff, w	Na, Sd, Sg	M, Ff, O	MSI-3403
59. *L. perpusilla* Torr.*	Khudi pana	Wtl	H, ff, w	All upazilas	Gn, O	MSI-3362
60. *Pistia stratiotes* L.	Topana	Wtl	H, ff, w	Sd, Sg	M, Ff, O	MSI-3307
61. *Scindapsus officinalis* (Roxb.) Schott	Gaj-pipal	Gr, Hs	H, er, pl	Sd, Vh	M, O	MSI-0805
62. *Syngonium podophyllum* Schott*	Podolata kachu	Fl, Gr, Hs, Sj	H, pr, w	Gm, Sd, Sg	Or, O	MSI-3370
63. *Typhonium flagelliforme* (G.Lodd.) Blume	Ghechu	Ag	H, er, w	All upazilas	M, O	MSI-3441
64. *T. trilobatum* (L.) Schott	Ghet kachu	Ag, Fl, Rs	H, er, w	Sd, Sg	M, Vg, O	MSI-3390
65. *Xanthosoma sagittifolium* (L.) Schott*	Dudhkachu	Fl, Hs	H, er, pl	All upazilas	M, Vg, O	MSI-3371

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
Commelinaceae Mirb.						
66. *Commelina benghalensis* L.	Kanchira	Ag, Fl, Gl, Rs	H, cr, w	All upazilas	M, Lf, C	MSI-1206
67. *C. diffusa* Burm.f.	Kanchira	Ag, Fl, Gl, Rs	H, cr, w	All upazilas	M, Lf, O	MSI-1359
68. *C. longifolia* Lam.	Pani Kanchira	Ag, Fl, Gl, Wtl	H, cr, w	Gm, Sd	Lf, R	MSI-0182
69. *C. paludosa* Blume	Jata Kanchira	Ag, Fl, Gl, Rs	H, cr, w	Gm, Sd, Sg	M., Lf, R	MSI-1910
70. *Cyanotis axillaris* (L.) D.Don ex Sweet	Beguni kanchira	Fl, Gl, Rs	H, cr, w	Na, Sd	M., Lf, R	MSI-2415
71. *C. cristata* (L.) D.Don	Akasi kanchira	Fl, Gl, Rs	H, cr, w	Na, Sd	M., Lf, R	MSI-2905
72. *Murdannia nudiflora* (L.) brenan	Kanduli, Kureli	Ag, Fl, Rs	H, cr, w	All upazilas	M., Lf, C	MSI-1893
73. *M. simplex* (Vahl) Brenan*	Kureli	Ag, Fl, Rs	H, cr, w	Gm, Na, Sd, Sg	Lf, R	MSI-3364
74. *Tradescantia spathacea Sw.**	Boat Lily	Gr, Hs	H, er, pl	Sd	Or, R	MSI-3460
Cyperaceae Juss.						
75. *Abildgaardia ovata* (Burm.f.) Kral; Syn: *Fimbristylis ovata* (Burm.f.) J.Kern	Marmari	Ag, Fl	H, er, w	Gm, Sd	M, Lf, O	MSI-3335
76. *Cyperus articulatus* L.	Mutha ghas	Fl, Gl, Rs	H, er, w	All upazilas	M, Lf, O	MSI-3442
77. *C. brevifolius* (Rottb.) Hassk.; Syn. *Kyllinga brevifolia* Rottb.	Shabuj nirbisa	Fl, Gl, Rs	H, er, w	Sd	M, Lf, O	MSI-2423
78. *C. compressus* L.	Chancha	Fl, Gl, Rs	H, er, w	Gm, Na, Sd, Sg	M, Lf, O	MSI-3353
79. *C. corymbosus* Rottb.	Mutha ghas	Fl, Gl, Wtl	H, er, w	Sg	Lf, O	MSI-3391
80. *C. cuspidatus* Kunth	Vada, Vadale	Fl, Gl, Rs	H, er, w	All upazilas	Lf, O	MSI-1506
81. *C. difformis* L.	Behua ghas	Fl, Gl	H, er, w	Sg	M, Lf, O	MSI-2995
82. *C. distans* L.f.	Panimalanga	Fl, Gl, Rs	H, er, w	Sd, Sg	M, Lf, O	MSI-3382
83. *C. eragrostis* Lam.*	Panimutha	Ag, Fl, Gl, Wtl	H, er, w	Sg	Lf, R	MSI-3385
84. *C. exaltatus* Retz.	Tata ghas, Mutha	Ag, Wl	H, er, w	Gm, Sg, Vh	Lf, R	MSI-0980
85. *C. haspan* L.	Mutha	Ag, Fl, Gl	H, er, w	Sd, Sg	M, Lf, O	MSI-2235
86. *C. iria* L.	Borochucha mutha	Fl, Gl, Rs	H, er, w	Na, Sd, Sg	M, Lf, O	MSI-1148
87. *C. michelianus* (L.) Delile	Pygmy mutha	Ag, Fl, Gl	H, er, w	Sg	Lf, R	MSI-0935
88. *C. mindorensis* (Steud.) Huygh; Syn: *Kyllinga nemoralis* (J.R.Forst. & G.Forst.) Dandy ex Hutch. & Dalziel	Subashi	Ag, Fl, Gl, Rs	H, er, w	All upazilas	M, Lf, R	MSI-3354
89. *C. niveus* Retz.	Sada mutha	Ag, Gl	H, er, w	Sg	M, R	MSI-0938
90. *C. pangorei* Rottb.	Badami mutha	Ag, Fl, Gl	H, er, w	Sd, Sg	Fn, Fb, O	MSI-2854
91. *C. rotundus* L.	Nagar mutha	Fl, Gl, Hs,Rs	H, er, w	Sd, Sg	M, Lf, C	MSI-0520
92. *C. tenuispica* Steud.	jupri mutha	Ag, Fl, Gl	H, er, w	Sg	Lf, O	MSI-3386
93. *Cyperus* sp.; Syn: *Kyllinga* sp.	Ghas	Ag, Fl	H, er, w	Na	Lf, R	MSI-0760
94. *Fimbristylis aestivalis* (Retz.) Vahl	jhakra fimbry	Ag, Fl, Gl	H, er, w	Sd, Sg	M, Lf, O	MSI-0831
95. *F. alboviridis* C.B.Clarke	Albo fimbry	Ag, Fl, Gl	H, er, w	Sd, Sg	Lf, O	MSI-0983
96. *F. bisumbellata* (Forssk.) Bubani	Bisu fimbry	Ag, Fl	H, er, w	Sd	Lf, R	MSI-1258
97. *F. dichotoma* (L.) Vahl	Bara nirbishi	Ag, Fl	H, er, w	Na, Sd	Lf, C	MSI-1158

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
98. *F. dichotoma* subsp. *podocarpa* (Nees) T.Koyama	Nirbishi ghas	Ag, Fl	H, er, w	Sd	Lf, C	MSI-2559
99. *F. dipsacea* (Rottb.) C.B.Clarke	Dipsa fimbry	Ag, Fl	H, er, w	Sd	Gn, R	MSI-3401
100. *F. falcata* (Vahl) Kunth	Soto nirbishi	Ag, Fl	H, er, w	Sd	M, Lf, R	MSI-2553
101. *F. quinquangularis* (Vahl) Kunth	Bara javani	Ag	H, er, w	Sg	M, Lf, O	MSI-0972
102. *F. quinquangularis* subsp. *quinquangularis*; Syn: *F. miliacea* (L.) Vahl	Milia fimbry	Ag, Fl	H, er, w	Gm, Sd, Sg	M, Lf, O	MSI-2964
103. *Fimbristylis* sp.	Ghas	Ag, Fl	H, er, w	Sd	Lf, R	MSI-1018
104. *Rhynchospora colorata* (L.) H.Pfeiff.*	Sadatara ghas	Ag, Fl	H, er, w	Na, Sd, Sg, Vh	M, Lf, O	MSI-3309
Syn: *Kyllinga monocephala* Rottb.						
105. *Schoenoplectiella articulata* (L.) Lye; Syn: *Schoenoplectus articulatus* (L.) Palla	Chechra	Fl, Wtl	H, er, w	All upazilas	M, Lf, C	MSI-0958
106. *S. juncoides* (Roxb.) Lye; Syn: *Schoenoplectus juncoides* (Roxb.) Palla	Chechra	Fl, Wtl	H, er, w	Sd	Lf, Fu, O	MSI-1259
107. *S. supina* (L.) Lye; Syn: *Schoenoplectus supinus* (L.) Palla	Sada Chechra	Fl, Wtl	H, er, w	Gm, Sd	M, Lf, O	MSI-1941
108. *Schoenoplectiella* sp.; Syn: *Schoenoplectus* sp.	Chechra	Fl, Wtl	H, er, w	Sd, Sg	Fu, Lf, R	MSI-0960
Poaceae Barnhart						
109. *Arundinella bengalensis* (Spreng.) Druce	Gongabena	Fl, Gl, Ml	H, er, w	All upazilas	Lf, O	MSI-3109
110. *Arundo donax* L.	Boronal, Goba-nal	Rb, Hs	H, er, w	Na, Sg	M, Lf, R	MSI-2633
111. *Axonopus compressus* (Sw.) P.Beauv.	Carpet ghas	Fl, Gl, Rs	H, er, w	All upazilas	M, Lf, C	MSI-1593
112. *Bambusa balcooa* Roxb.	Borak bans	Gr, Hs	Bmbo, pl	All upazilas	Hc, Pp, Vg, O	MSI-3345
113. *B.bambos* (L.) Voss	Kanta bans	Gr	Bmbo, pl	Sg	Hc, Pp, C	MSI-3378
114. *B. nutans* Wall. ex Munro	Makhla	Gr, Hs	Bmbo, pl	All upazilas	Pp, Tm, O	MSI-3346
115. *B. salarkhanii* Alam	Kalijowa	Gr, Hs	Bmbo, pl	Gm	Hc, Pp, R	MSI-3348
116. *B. tulda* Roxb	Talla bans	Gr, Hs	Bmbo, pl	Gm, Sd, Sg	Hc, Pp, O	MSI-3344
117. *B. vulgaris* Schrad. ex J.C.Wendl.*	Ora bans	Gr, Hs	Bmbo, pl	Sd, Sg	Hc, Pp, Tm, C	MSI-3379
118. *Cenchrus americanus* (L.) Morrone*	Kauni, Bajra	Ag, Fl, Rs	H, er, w	Na, Sd, Sg	Ed, Lf, O	MSI-1360
Syn: *Setaria glauca* (L.) P.Beauv.						
119. *C. purpureus* (Schumach.) Morrone* Syn: *Pennisetum purpureum* Schumach.	Nepier ghas	Fl, Gl, Hs, Rs	H, er, cv	Na	M, Lf, O	MSI-3417
120. *Centotheca lappacea* (L.) Desv.	Centughas	Sj	H, pr, w	Sg	Lf, R	MSI-0268
121. *Chloris barbata* Sw.	Bataghas	Ag, Fl, Rs	H, er, w	Sd, Sg	M, Lf, O	MSI-0148
122. *C. virgata* Sw.*	Angulighas	Ag, Fl, Rs	H, er, w	Na, Sg, Vh	M, Lf, O	MSI-0356
123. *Chrysopogon aciculatus* (Retz.) Trin.	Premkanta	Fl, Gl, Rs	H, pr, w	Sd	Lf, C	MSI-3396
124. *C. zizanioides* (L.) Roberty	Bena	Fl, Ml, Rb	H, er, w	Sd	M, Lf, Fu, C	MSI-0402
125. *Coix lacryma-jobi* L.	Kuch, Roti	Fl, Rb, Wtl	H, er, w	All upazilas	M, Lf, O	MSI-1482
126. *Cynodon dactylon* (L.) Pers.	Durba ghas	Fl, Gl, Rs	H, pr, w	All upazilas	M, Lf, C	MSI-0325

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
127. *Cyrtococcum accrescens* (Trin.) Stapf	birenighas	Ag, Gl	H, cr, w	Sd, Sg	Lf, O	MSI-1196
128. *Dactyloctenium aegyptium* (L.) Willd.	Kakpaya	Fl, Gl, Rs	H, er, w	Sd, Sg	M, Lf, C	MSI-0328
129. *Desmostachya bipinnata* (L.) Stapf	Kusha ghas	Fl, Gl, Rs	H, er, w	Na, Sg	M, Lf, O	MSI-1125
130. *Dichanthium annulatum* (Forssk.) Stapf	Arali ghas	Fl, Gl, Ml, Rs	H, er, w	Na, Sg	M, Lf, R	MSI-1567
131. *D. caricosum* (L.) A.Camus	Arali ghas	Fl, Gl, Ml, Rs	H, er, w	Na, Sg	M, Lf, R	MSI-0493
132. *Digitaria bicornis* (Lam.) Roem. & Schult.	Baikochira	Fl, Gl, Ml, Rs	H, er, w	Na, Sd, Sg	Lf, O	MSI-0738
133. *D. ciliaris* (Retz.) Koeler	Kokjachira	Fl, Gl, Ml, Rs	H, er, w	Na, Sd, Sg	M, Lf, C	MSI-1710
134. *D. ischaemum* (Schreb.) Muhl.*	Crab ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	Lf, O	MSI-2494
135. *D. sanguinalis* (L.) Scop.	Mukurjoli	Fl, Gl, Ml, Rs	H, pr, w	Sd	M, Lf, C	MSI-2517
136. *D. setigera* Roth	Crab ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	M, Lf, R	MSI-1180
137. *D. stricta* Roth	Trick ghas	Fl, Gl, Ml, Rs	H, er, w	Sd	Lf, R	MSI-1301
138. *D. ternata* (A.Rich.) Stapf	Nata ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	Lf, O	MSI-1086
139. *Dinebra chinensis* (L.) P.M.Peterson & N.Snow; Syn: *Leptochloa chinensis* (L.) Nees	Fulka ghas	Ag, Fl, Wtl	H, er, w	Sg	Lf, R	MSI-1824
140. *D. panicea* (Retz.) P.M.Peterson & N.Snow; Syn: *Leptochloa panicea* (Retz.) Ohwi	Mona ghas	Fl, Wtl	H, er, w	Sd	Lf, R	MSI-1867
141. *Echinochloa colonum* (L.) Link	Shama ghas	Fl, Ml, Wtl	H, er, w	All upazilas	Ed, M, Lf, C	MSI-0947
142. *Echinochloa crus-galli* (L.) P.Beauv.	Boroshama ghas	Fl, Ml, Wtl	H, er, w	Na, Sd, Sg, Vh	M, Lf, C	MSI-0985
143. *E. stagnina* (Retz.) P.Beauv.	Shama ghas	Fl, Ml, Wtl	H, er, w	Sd, Sg, Vh	Lf, O	MSI-0827
144. *Eleusine indica* (L.) Gaertn.	Kesla, Malankuri	Fl, Gl, Rs	H, er, w	All upazilas	M, Lf, C	MSI-1039
145. *Enteropogon dolichostachyus* (Lag.) Keng; Syn: *Chloris dolichostachya* Lag.	Anguli ghas	Ag, Fl, Rs	H, er, w	Sg	Lf, R	MSI-3387
146. *Eragrostis ciliaris* (L.) R.Br.	Chotochira ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	M, Lf, C	MSI-2372
147. *E. japonica* (Thunb.) Trin.; Syn: *E. diarrhena* (Schult. & Schult.f.) Steud.	Panghas, love ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	M, Lf, O	MSI-1010
148. *E. multiflora* Trin.; Syn: *E. tremula* Hochst. *ex* Steud.	Mulakoni	Ag, Fl, Rs	H, pr, w	Sd, Sg	Lf, O	MSI-0936
149. *E. tenella* (L.) P.Beauv. ex Roem. & Schult.	Koni ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	M, Lf, C	MSI-0475
150. *E. tenuifolia* (A.Rich.) Hochst. ex Steud.	Chira ghas	Ag, Fl, Rs	H, er, w	Sd	M, Lf, C	MSI-1762
151. *Eriochloa procera* (Retz.) C.E.Hubb.	Cup ghas	Ag, Fl, Rs	H, er, w	Sd, Sg	M, Lf, O	MSI-1822
152. *Eulalia leschenaultiana* (Decne.) Ohwi	Eulali ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	Lf, O	MSI-1657

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
153. *Gigantochloa nigrociliata* (Buse) Kurz	Kalibans	Gr, Hs	Bmbo, pl	Gm, Sd, Sg	Hc, Pp, R	MSI-3360
154. *Hordeum vulgare* L.*	Barley	Ag, Fl	H, er, cv	Sd	Ed, M, Fu, O	MSI-109
155. *Hygroryza aristata* (Retz.) Nees ex Wight & Arn.	Duloli ghas	Wtl	H, ff, w	Sd, Sg	Lf, Ff, C	MSI-2173
156. *Imperata cylindrica* (L.) Raeusch.*	Chhon ghas	Ag, Gl, Fl, Ml, Rs	H, er, w	All upazilas	M, Hc, Fn, C	MSI-3361
157. *Leersia hexandra* Sw.	Jongli dhan,	Ag, Fl, Wtl	H, er, w	Gm, Na, Sd, Sg	M, Lf, C	MSI-2182
158. *Louisiella paludosa* (Roxb.) Landge; Syn: *Panicum paludosum* Roxb.	Baksa ghas	Ag, Fl, Ml	H, er, w	Sg	Lf, O	MSI-1825
159. *Melocanna baccifera* (Roxb.) Kurz	Muli bans	Gr, Hs	Bmbo, pl	All upazilas	Hc, M, O	MSI-3363
160. O*plismenus burmanni* (Retz.) P.Beauv.	Jabri durba, Jabri ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg, Vh	M, Lf, C	MSI-2551
161. *O. compositus* (L.) P.Beauv.	Gohur	Gl, Ml, Rs, Sj	H, er, w	All upazilas	M, Lf, C	MSI-0651
162. *Oryza sativa* L.*	Dhan	Ag, Fl, Wtl	H, er, cv	All upazilas	Ed, Lf, M, C	MSI-2377
163. *Panicum brevifolium* L.	Bashpati ghas	Gl, Ml	H, er, w	Sd, Sg	M, Lf, O	MSI-1067
164. *P. curviflorum* Hornem.; Syn: *P. trypheron* Schult.	Dhani ghas	Ag, Fl, Ml	H, er, w	Sd, Sg	Lf, O	MSI-1308
165. *P. humidorum* Buch.-Ham. ex Hook.f.	China ghas	Ag, Fl, Ml	H, er, w	Gm, Sd, Sg	Lf , O	MSI-2987
166. *P. miliaceum* L.	China	Ag, Fl	H, er, cv	Sg	Ed, Lf, O	MSI-0961
167. *P. notatum* Retz.	Jabri ghas	Gr, Hs, Fl, Rs, Wl	H, pr, w	Gm, Sd, Sg	Lf, C	MSI-1044
168. *P. repens* L.	Dhani ghas	Fl, Gl, Rs	H, er, w	Na, Sg	Lf, C	MSI-0262
169. *Panicum* sp.	Ghas	Ag, Fl, Gl	H, er, w	Na, Sg	Lf, R	MSI-1044
170. *Paspalum conjugatum* P.J.Bergius*	Moisshya ghas,	Gl, Hs, Rs	H, er, w	Sg	M, Lf, C	MSI-3389
171. *P. orbiculare* G.Forst.*	Bahia ghas	Ag, Fl, Gl	H, er, w	Sd, Sg	Lf, O	MSI-2658
172. *P. scrobiculatum* L.	Bishmona ghas	Fl, Gl, Rs	H, er, w	Gm, Sd, Sg, Vh	M, Lf, C	MSI-3368
173. *Paspalum* sp.	Ghas	Fl, Gl	H, er, w	Sd	Lf, R	MSI-0791
174. *Phragmites* karka (Retz.) Trin. ex Steud.	Nalkhagra	Ag, Rs	H, er, cv	Sg	Hc, Fn, O	MSI-1830
175. *Pseudopogonatherum contortum* (Brongn.) A.Camus	Voya ghas, Banspata ghas	Fl, Gl	H, er, w	Sd	Lf, O	MSI-2374
176. *Pseudoraphis spinescens* (R.Br.) Vickery	Katarafi ghas	Ag, Gl, Fl	H, er, w	All upazilas	Lf, O	MSI-3443
177. *Rottboellia cochinchinensis* (Lour.) Clayton	Bara swati	Ag, Fl, Rb	H, er, w	Sd, Sg	M, Lf, C	MSI-3444
178. *Saccharum officinarum* L.*	Akh, Kusol	Ag, Hs	H, er, cv	All upazilas	Ed, Lf, Pp, O	MSI-3445
179. *S. spontaneum* L.	Kashful, Kaisha	Fl, Gl, Ml, Rb	H, er, w	Sd	Lf, Fn, C	MSI-3411
180. *Sacciolepis interrupta* (Willd.) Stapf	Nardula	Fl, Gl	H, er, w	Sd, Vh	Lf, O	MSI-3412
181. *S. myosuroides* (R.Br.) Chase ex E.G.Camus & A.Camus	Musurdolla ghas	Fl, Gl, Wtl	H, er, w	Sd, Sg	Lf, O	MSI-1928
182. *Setaria flavida* (Retz.) Veldkamp; Syn: *Paspalidium flavidum* (Retz.) A.Camus	Karin ghas	Ag, Fl	H, er, w	All upazilas	Lf, R	MSI-1298
183. *S. italica* (L.) P.Beauv.*	Kaon	Fl, Gl, Ml	H, er, cv	Na, Sd	Ed, M, Lf, C	MSI-0706

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
184. *S. palmifolia* (J.Koenig) Stapf	Urodhan	Fl, Gl, Ml	H, er, w	Sd	Ed, M, Lf, O	MSI-1171
185. *S. pumila* (Poir.) Roem. & Schult.	Shial leja	Fl, Gl, Ml	H, er, w	Na, Sd	M, Lf, C	MSI-0734
186. *S. verticillata* (L.) P.Beauv.	Shial leja	Fl, Gl, Ml	H, er, w	Sd	M, Lf, O	MSI-0691
187. *Sorghum bicolor* (L.) Moench* Syn: *Sorghum vulgare* Pers.	jowar	Ag, Ml	H, er, w	Sd, Sg	Ed, M, Lf, O	MSI-3416
188. *Sorghum* sp.	jowar	Ag, Ml	H, er, w	Sd, Sg	Lf, R	MSI-0946
189. *Sporobolus diandrus* (Retz.) P.Beauv.	Benajoni ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	Lf, C	MSI-3043
190. *S. indicus* (L.) R.Br.*	Ailbelajoni ghas	Fl, Gl, Ml, Rs	H, er, w	Sd, Sg	M, Lf, C	MSI-1720
191. *S. virginicus* (L.) Kunth	Tussock ghas	Fl, Gl, Ml, Rs	H, er, w	Na, Sd	M, Lf, R	MSI-2637
192. *Themeda quadrivalvis* (L.) Kuntze	Grader ghas	Ag, Gl	H, er, w	Sd	Fu, O	MSI-3414
193. *Triticum aestivum* L.*	Gom	Ag, Fl	H, er, cv	All upazilas	Ed, M, Lf, C	MSI-0089
194. *Urochloa distachyos* (L.) T.Q.Nguyen; Syn: *Brachiaria distachyos* (L.) Stapf	Cori ghas	Ag, Fl, Rs	H, pr, w	All upazilas	M, Lf, O	MSI-1370
195. *Urochloa kurzii* (Hook.f.) T.Q.Nguyen; Syn: *Brachiaria kurzii* (Hook.f.) A.Camus	Birenighas	Ag, Fl, Rs	H, pr, w	Na, Sd	Lf, R	MSI-2583
196. *Urochloa mutica* (Forssk.) T.Q.Nguyen*	Brachiaria ghas	Ag, Fl, Rs	H, pr, w	Gm, Sd, Sg	M, Lf, O	MSI-2599
197. *Urochloa panicoides* P.Beauv.	Kuri ghas	Gl, Rs	H, cr, w	Na, Sd	Lf, O	MSI-1324
198. *U. ramosa* (L.) T.Q.Nguyen	Brachiaria ghas	Ag, Fl, Rs	H, pr, w	Sd, Sg	Lf , O	MSI-0915
199. *U. reptans* (L.) Stapf; Syn: *Brachiaria reptans* (L.) C.A.Gardner & C.E.Hubb.	Peraghas, Kuj	Ag, Fl, Rs	H, pr, w	Sd, Sg	M, Lf, O	MSI-1274
Typhaceae Juss.						
200. *Typha elephantina* Roxb.	Hoglapata	Fl, Wtl	H, er, w	Gm, Na, Sd	Hc, Fn, R	MSI-2839
Bromeliaceae Juss.						
201. *Ananas comosus* (L.) Merr.*	Anarash	Gr, Hs	H, er, pl	Gm, Sd, Sg	Fr, M, O	MSI-3341
Heliconiaceae Nakai						
202. *Heliconia psittacorum* L.f.*	Parakeet phul	Gr, Hs	H, er, cv	Na	Or, R	MSI-3419
Musaceae Juss.						
203. *Musa acuminata* Colla	Sobrikola	Fl, Hs, Ml	H, er, cv	All upazilas	M, Fr, C	MSI-3366
204. *M. balbisiana* Colla*	Bichikola	Fl, Hs, Ml	H, er, cv	All upazilas	M, Fr, Vg, C	MSI-3367
205. *Musa* × *paradisiaca* L.*	Kachkola	Fl, Hs, Ml	H, er, cv	All upazilas	Ed, M, Vg, C	MSI-3365
Zingiberaceae Martinov						
206. A*lpinia calcarata* (Andrews) Roscoe*	Sugandha mul	Sj, Wl	H, er, cv	Sd	M, O	MSI-3392
207. *Alpinia nigra* (Gaertn.) Burtt	Tara	Sj, Wl	H, er, w	Sd, Sg	M, Fn, O	MSI-3376
208. *Curcuma aromatica* Salisb.	Ban halud	Fl, Rs, Wl	H, er, w	All upazilas	M, R	MSI-3350
209. *C. longa* L.*	Halud	Fl, Hs	H, er, cv	All upazilas	Ed, M, C	MSI-3351
210. *C. zedoaria* (Christm.) Roscoe	Shoti	Fl, Rs, Sj, Hs, Wl	H, er, w	All upazilas	M, C	MSI-3352
211. *Zingiber officinale* Roscoe*	Ada	Fl, Hs,	H, er, cv	All upazilas	Ed, M, O	MSI-3372
Costaceae Nakai						
212. *Hellenia speciosa* (J.Koenig) S.R.Dutta; Syn: *Cheilocostus speciosus* (J.Koenig) C.D.Specht	Keomul	Fl, Rb, Rs	H, er, w	Sd	M, O	MSI-2481

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
Cannaceae Juss.						
213. *Canna glauca* L.*	Holud kolabati	Gr, Hs	H, er, cv	Na, Sd	Or, R	MSI-3394
214. *C. indica* L.*	Kolabati	Gr, Hs, Rs	H, er, w	Na, Sd	Or, O	MSI-3395
Pontederiaceae Kunth						
215. *Pontederia crassipes* Mart.* Syn: *Eichhornia crassipes* (Mart.) Solms	Kochuripana	Wtl	H, ff, w	All upazilas	M, Lf, Fu, C	MSI-1648
216. *P. hastata* L.; Syn: *Monochoria hastata* (L.) Solms	Boro nukha	Wtl	H, em, w	Gm, Sd, Sg	M, Lf, C	MSI-1938
217. *P. vaginalis* Burm.f.; Syn: *Monochoria vaginalis* (Burm.f.) C.Presl ex Kunth	Nukha	Wtl	H, em, w	Gm, Sd, Sg	M, Lf, R	MSI-2181
Asphodelaceae Juss.						
218. *Aloe vera* (L.) Burm.f.*	Ghritakumari	Gr, Hs	H, er, pl	All upazilas	M, R	MSI-3339
Amaryllidaceae J.St.-Hil.						
219. *Allium cepa* L.*	Piyaj	Ag, Hs	H, er, cv	All upazilas	M, Sp, O	MSI-3322
220. *A. sativum* L.*	Rashun	Ag, Hs	H, er, cv	All upazilas	M, Sp, O	MSI-3334
221. *Crinum americanum* L.*	Shukdarshan	Gr, Hs	H, er, pl	Gm, Sd, Sg	M, Or, R	MSI-3324
222. *C. asiaticum* L.	Shukdarshan	Gr, Hs	H, er, pl	Gm, Sd, Sg	M, O	MSI-3325
Asparagaceae Juss.						
223. *Agave angustifolia* Haw.	Agachokha	Gr, Hs	Sh, pl	Sd, Sg, Na	M, Fb, R	MSI-3373
224. *A. americana* L.*	Shatabdi	Gr, Hs	H, er, cv	All upazilas	M, Or, R	MSI-3336
225. *A. vivipara* L.*	Jarauj agav	Gr, Hs	H, er, cv	Sd, Sg	Or, R	MSI-3374
226. *Asparagus racemosus* Wild.	Shatamuli	Gr, Hs, Sj	H, vi, w	All upazilas	M, R	MSI-3377
227. *Cordyline fruticosa* (L.) A.Chev.*	Agnishwar	Hs	Sh, cv	Gm, Sd, Sg	M, Dy, Or, R	MSI-3439
228. *Dracaena angustifolia* (Medik.) Roxb.	Bashpata dracena	Gr, Hs	Sh, cv	Sd, Sg	Dy, R	MSI-3438
229. *D. braunii* Engl.*	Dracaena	Gr, Hs	H, er, cv	Na, Sd, Sg	Or, R	MSI-3398
230. *D. fragrans* (L.) Ker Gawl.*	Gondhi drakan	Gr, Hs	Sh, pl	Gm, Sd, Sg	M, Ar, Or, R	MSI-3356
231. *D. reflexa* Lam. *	Dracaena	Gr, Hs	H, er, cv	Na, Sd, Sg	Or, R	MSI-3399
232. *D. trifasciata* (Prain) Mabb.* Syn: *Sansevieria trifasciata* Prain	Sarpagach, Snake plant	Hs, Rs	H, er, pl	All upazilas	M, Fb, Or, R	MSI-0572
233. *Furcraea foetida* (L.) Haw.*	Gandho hemp	Gr, Hs	Sh, pl	Gm, Na, Sd, Sg,	M, Or, R	MSI-3359
234. *F. tuberosa* (Mill.) W.T.Aiton*	Century	Gr, Hs	Sh, pl	Sd, Sg	Or, R	MSI-3402
Colchicaceae DC.						
235. *Gloriosa superba* L.	Ulatchandal	Gr, Hs, Wl	H, vi, w	Sd	M, Or, R	MSI-1249
Smilacaceae Vent.						
236. *Smilax guianensis* Vitman*	Bagh lata	Sj, Wl	H, vi, w	Na	M, R	MSI-3420
237. *S. ovalifolia* Roxb. ex D. Don	Kumarika, Kumarilata	Sj, Wl	H, vi, w	Gm, Na, Sd	M, R	MSI-3397
238. *Smilax* sp.	Unknown	Sj, Wl	H, vi, w	Sd	M, R	MSI-0589
Dioscoreaceae R.Br.						
239. *Dioscorea alata* L.	Chupri alu	Hs, Sj	H, vi, w	Sd, Sg	M, Ed, O	MSI-1465
240. *D. bulbifera* L.	Ban alu	Hs, Rb, Sj	H, vi, w	Sd	M, O	MSI-3446
241. *Dioscorea elephantipes* (L'Hér.) Engl.* Syn: *Dioscorea montana* (Burch.) Spreng.	Boro alu	Hs, Sj	H, vi, w	Na	M, Ed, O	MSI-1137
242. *D. esculenta* (Lour.) Burkill	Mou alu	Gr, Sj, Wl	H, vi, cv	Na	M, Ed, O	MSI-3418

Name	Common Name	Habitat	Habit	Distribution	Use & status	RSE
243. *D. glabra* Roxb.	Gach alu	Gr, Sj, Wl	H, vi, cv	Sg	M, Ed, O	MSI-2997
244. *D. pentaphylla* L.	Jhum alu	Gr, Sj, Wl	H, vi, w	Sd, Sg	M, R	MSI-0307
Orchidaceae Juss.						
245. *Eulophia picta* (R.Br.) Ormerod; Syn: *Geodorum densiflorum* (Lam.) Schltr.	Sankhamani	Wl	H, er, w	Sd	Or, R	MSI-1595
246. *Rhynchostylis retusa* (L.) Blume	Kopou phool	Hs, Wl	H, pl	Gm, Sd	M, Or, R	MSI-1967
247. *Vanda tessellata* (Roxb.) Hook. ex G.Don	Rasna	Gr, Hs, Op	H, ep, w	All upazilas	M, Or, R	MSI-3415
248. *Zeuxine nervosa* (Wall. ex Lindl.) Benth. ex Trimen	Nervoxine orchid	Fl, Wl	H, er, w	Sd, Sg	Lf, R	MSI-0306
249. *Z. strateumatica* (L.) Schltr.	Lawn orchid, Soldier orchid	Gr, Hs	H, er, w	Sd	Or, R	MSI-0663

Notes: Habitat: Ag- agricultural field, Bw- On brick wall, Fl- Fallowland, Gl- Grassland, Gr- Garden, Hs- Homestead, Ml- Marginal land, Op- On plant, Rb- River bank, , Rs- Roadside, Sj- Scrub jungle, Wl- Woodland, Wtl- Wetland. **Habit:** H- Herb, Sh- Shrub, T- Tree, Bmbo- bamboo, cr- creeper, cv- cultivated, cl- climber, em- emergent, ep- epiphyte, er-erect, ff- free floating, fl- floating with rooted, Plm- palm, pl- planted, pr- prostrate/procumbent, sm- submerged, vi-vine, w-wild. **Distribution:** Sd- Chapainawabganj Sadar, Gm- Gomastapur, Na- Nachole, Sg- Shibganj, Vh- Bholahat. **Use:** Aq- aquarium plant, Ar- Air purification, Dy- Dye yielding, Ed- Edible, Fb- Fibre, Lf- Livestock Food, Ff- Fish feed, Fn- Fence, Fr- Fruit, Fu- Fuel, Gn- Green manure, Hc- Handicrafts, M- Medicine, Or- Ornamental, Ol- Oil yielding, Pd- Poison dart plant, Pp- Paper pulp, Sp- Spice, Tm- Timber, Vg- Vegetable; C- Common, O- Occasional, R- Rare. **Origin:***- Exotic; **Syn**.- Synonym. **RSE** (Reprtesentative Specimens Examined): MSI- Muhammad Shahidul Islam.

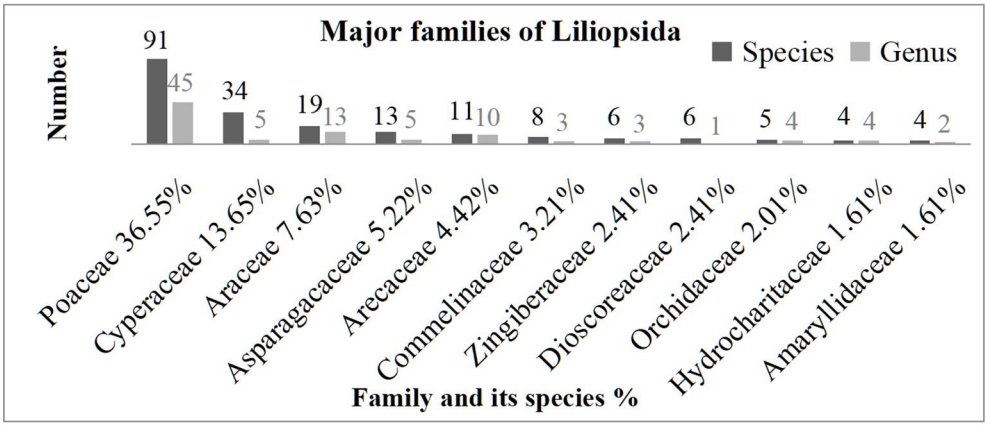

Fig. 2. Composition of major plant families of Liliopsida of Chapainawabganj district.

Setaria P. Beauv. and *Eragrostis* Wolf with five species, and *Alocasia* (Schott) G. Don, *Commelina* L., *Schoenoplectiella* Lye, and *Paspalum* L. with four species each. Among the monocotyledons, 199 taxa (88.05%) were herbs, 11 (4.87%) were palms, eight (3.54%) were shrubs, and eight (3.54%) were bamboos. A total of 167 (73.89%) taxa of Liliopsida were found in the wild, 31 (13.72%) as planted, and 28 (12.39%) as cultivated.

There was a common occurrence of 58 taxa, or 23.29% of the total accounted for in Chapainawabganj district, in the five upazilas, *viz.*, Chapainawabganj Sadar, Shibganj, Nachole, Gomastapur, and Bholahat. These included 51 taxa of monocotyledons, five of pteridophytes, and two species of gymnosperms. Out of these five upazilas, the highest number of taxa were found in Chapainawabganj Sadar, followed by Shibganj, Nachole, Gomastapur, and Bholahat upazilas (Fig. 3).

The taxonomic counts of the monocotyledonous species of the Gomastapur, Nachole, and Bholahat upazilas that this study completed (Fig. 3) are higher than the accounts on the monocotyledonous species of other upazilas cited earlier, but somewhat lower than those of Chapainawabganj Sadar and Shibganj upazilas, almost similar to those of the Monohordi, Narshingdi Sadar, and Polash upazilas of the Narshingdi district (Khanam *et al.*, 2020; Khanam and Khan, 2020) and Satkhira Sadar upazilas (Hossain *et al*., 2021) previously reported.

The Jaccard coefficient also indicated that there was a 23.29% similarity in the composition of plant taxa among the five upazilas in the Chapainawabganj district (Fig. 4). It suggests that, rather than being similar, the species compositions in these upazilas, that is, throughout the district, were comparatively more variable. Nonetheless, a comparison of the plant species composition of the Chapainawabganj Sadar upazila with that of the other upazilas in the Chapainawabganj district reveals that there was a range of similarities, from 31.70% to 46.31%.

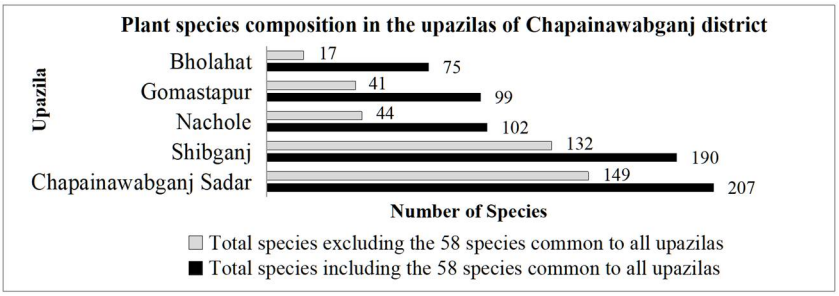

Fig. 3. Plant species composition in five upazilas of Chapainawabganj district.

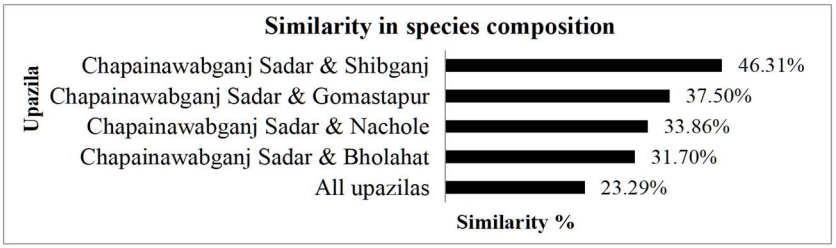

Fig. 4. Similarity in species composition in the upazilas of Chapainawabganj district based on Jaccard coefficient.

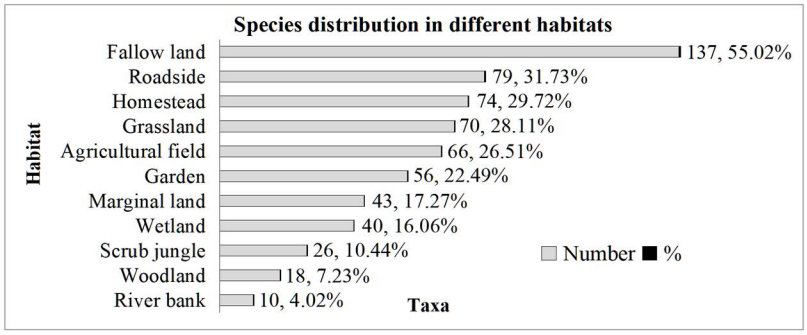

Fig. 5. Distribution of plant species in different habitats of Chapainawabganj district.

The species of studied plant groups in Chapainawabganj district were found to be distributed in diverse habitats. But the majority of the species were well suited to grasslands, homesteads, roadsides, fallow areas, and agricultural fields; these were followed by gardens, marginal lands, marshes, scrub jungles, wooded areas, and riverbanks. A few tree species and brick walls also harboured some of the species (Fig. 5).

Every plant species found in the district of Chapainawabganj has economic value, and nearly 60.64% of these species have two or more uses (Table 1). A total of 62.35% (154 species) of the studied plant groups in this district are medicinally useful. In addition, 123 species are designated as cattle food, followed by 32 ornamental, 21 edible, 11 vegetable, 10 handicraft, 9 fuel wood, and 8 paper pulp species. In addition, seven species are recognised as fibre, six as fruit and fencing, fish food, five species each for green manure, four as aquarium plants and oil-, dye-, and spice-producing, and the remaining flora are recognised as economically valuable (Table 1). Among the plant groups studied, 53 taxa were common, whereas 108 were found to be occasional and 88 to be rare.

In terms of plant diversity and resources, the Chapainawabganj district in northern Bangladesh appears to be at risk. Critical issues and dangers to the degradation and destruction of its habitats and ecosystems, and eventually to its flora and fauna, include drought, river bank erosion, poor regeneration of many species, various anthropogenic activities, and a lack of appropriate management strategies. Drought, river bank erosion, poor regeneration of many species, different anthropogenic activities, a lack of proper management programmes, etc. were identified for knowing the critical problems and threats for degradation and destruction of its habitats and ecosystems, and ultimately for its flora and biodiversity. *Eulophia picta*, *Rhynchostylis retusa*, and *Zeuxine nervosa* are found to be threatened in the Chapainawabganj district based on field observation.

The taxonomic data provided by this study might be useful to know about the current species composition of the three plant groups in the flora of Chapainawabganj district and helpful as an important guiding database to track the trend of changes in the floristic composition, plant species diversity, vegetation, and status of threatened plant species over time, especially due to different natural and anthropogenic threats, contribute to undertaking appropriate biodiversity conservation initiatives and plant resource-based sustainable socioeconomic development, and estimate the impacts of climate change on the flora and biodiversity of this area. This study recommends improving and preserving the area's valuable flora, reducing threats to its natural habitats, conducting regular taxonomic inventories, monitoring studies and research programmes on the diversity of plants in the area, and implementing sufficient plantation programmes that use appropriate indigenous species and have effective management plans and strategies.

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References

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). 2008–2009. Encyclopedia of Flora and Fauna of Bangladesh. Vols. **6**–**8** & **12**. Asiatic Society of Bangladesh, Dhaka.

Ahmed, Z.U., Hassan, M.A., Begum, Z.N.T., Khondker, M., Kabir, S.M.H., Ahmad, M. and Ahmed, A.T.A. (Eds). 2009. Encyclopedia of Flora and Fauna of Bangladesh. Vols. **9**–**10**. Asiatic Society of Bangladesh, Dhaka.

Angiosperm Phylogeny Group. 2016. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV", Botanical Journal of the Linnean Society **181**(1): 1– 20.

Cronquist, A. 1988 [1968]. The Evolution and Classification of Flowering Plants. Second Edition, 1988. Bronx, NY: The New York Botanical Garden, pp. 1–555.

District Statistics 2011 Chapainawabganj. 2013. Bangladesh Bureau of Statistics and Informatics Division, Ministry of Planning, Government of the People's Republic of Bangladesh. Parishankhan Bhaban, E-27/A, Agargaon, Dhaka-1207, pp.1–100.

Ghani, A. 1998. Medicinal Plants of Bangladesh with Chemical Constituents and Uses. Asiatic Society of Bangladesh, pp. 1–467.

Haque, A.K.M.K., Khan, S.A., Uddin, S.N. and Shetu, S.S. 2018. An annotated checklist of the angiospermic flora of Rajkandi Reserve Forest of Moulvibazar. Bangladesh. Bangladesh J. Plant Taxon. **25**(2): 187– 207.

Hooker, J.D. 1872–1897. The Flora of British India. Vols. **1**–**7**. L. Reeve & Co., Ashford, Kent, UK.

Hossain, G.M., Khan, S.A., Rahim, M.A., Rahman, M.S. and Islam, K.M.N. 2021. Floristic composition of the coastal district Satkhira, Bangladesh. Bangladesh J. Plant Taxon. **28**(1): 97–124.

Jaccard, P. 1912. The distribution of the flora of the alpine zone. New Phytologist **11**: 37–50.

Khan, M.S. 1977. Onagraceae. *In*: Khan, M.S. (Ed). Flora of Bangladesh. Fasc. **6**: 1–10. Bangladesh National Herbarium, BARC, Dhaka.

Khan, S.A., Sultana, S., Hossain, G.M., Shetu, S.S., and Rahim, M.A. 2021. Floristic composition of Jahangirnagar University campus - A semi-natural area of Bangladesh. Bangladesh J. Plant Taxon. **28**(1): 27–60.

Khanam, R. and Khan, S.A. 2020. Angiosperms in Narsingdi district of Bangladesh: Class Liliopsida. Bangladesh J. Plant Taxon. **27**(2): 391–405.

Khanam, R., Khan, S.A. and Rahim, M.A. 2020. Angiosperms in Narsingdi District of Bangladesh: Class Magnoliopsida. Bangladesh J. Plant Taxon. **27**(1): 153–271.

Khatun, M.A., Rashid, M.B. and Hygen, H.O. 2016. Climate of Bangladesh. MET report. Bangladesh Meteorological Department, pp.1–66.

Kramer, K.U. and Green, P.S. 1990. Pteridophytes and gymnosperms. *In*: Kubitzki K. The families and genera of vascular plants. Vol. **1**. Springer, Berlin.

Pichi, S.R.E.G. 1977. Tentamen pteridophytorum genera in taxonomicum ordinem redigendi. Webbia **31**: 313–512.

Prain, D. 1903. Bengal Plants. Vols. **1** &**2**. Reprint 1963. Botanical Survey of India, Calcutta.

Rahman, M.S., Hossain, G.M., Khan, S.A. and Uddin, S.N. 2015. An annotated checklist of the vascular plants of Sundarban mangrove forest of Bangladesh. Bangladesh J. Plant Taxon. **22**(1): 17–41.

Roy, G.K. and Khan, S.A. 2020. Preliminary taxonomic study on homestead flora of four districts of Bangladesh: Magnoliopsida. Bangladesh Journal of Plant Taxon. **27**(1): 37–65.Roy, G.K. and Khan, S.A. 2020b. Preliminary taxonomic study on homestead flora of four districts of Bangladesh: Liliopsida (Monocotyledons) and Pteridophyta. Bangladesh J. Plant Taxon. **27**(2): 407– 425.

Roxburgh, W. 1814. Hortus Bengalensis (*num.nud*.). Boerhaave Press, Leiden, Holland, pp. 1–105.

Siddiqui, K.U., Islam, M.A., Ahmed, Z.U., Begum, Z.N.T., Hassan, M.A., Khondker, M., Rahman, M.M., Kabir, S.M.H., Ahmad, M., Ahmed, A.T.A., Rahman, A.K.T. and Haque, E.U. (Eds). 2007. Encyclopedia of Flora and Fauna of Bangladesh. Vols. **5** & **11**. Asiatic Society of Bangladesh, Dhaka.

SFD Lite Report, 2022. Chapai Nawabganj Municipality Bangladesh, Produced by: CWIS-FSM Support Cell, DPHE, pp. 1–13.

Sultana, M. 2012. Taxonomic and ethnobatanical studies on the angiospermic flora of Patuakhali district in Bangladesh. Ph.D. Thesis (Unpublished). Department of Botany, University of Dhaka, pp. 1–565.

Tabassum, R. 2015. Angiospermic flora of Gazipur district, Bangladesh. Doctoral Dissertation. Department of Botany, University of Dhaka, pp. 1–707.

Uddin, S.N. and Hassan, M.A. 2018. Vascular flora of Chittagong and the Chittagong Hill Tracts: Vols. **1**–**3**. Bangladesh National Herbarium, Zoo Road, Mirpur 1, Dhaka 1216.

Van Valkenburg, J.L.C.H. and Bunyapraphatsara. N. (Eds). 2002. Plant Resources of South-East Asia. No. **12**(2). Medicinal and Poisonous Plants 2. Prosea Foundation, Bogor, Indonesia, 782 pp.

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