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RESEARCH ARTICLE

DIVERSITY OF ANGIOSPERMS IN SADAR UPAZILA OF GAIBANDHA DISTRICT, BANGLADESH FOCUSING ON IMPORTANT MEDICINAL VALUES

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Abstract

Diversity of angiospermic flora at Sadar upazila of Gaibandha district, Bangladesh were carried out during July 2024 to June 2025. A comprehensive collection of angiosperms and a floristic analysis have been conducted over the research area. A total of 201 species belonging to 177 genera and 65 families were recorded. Habit analysis of plant shows that herbs, shrubs, climbers and trees are represented by 82,48,22 and 49 species, respectively. There is variability in the abundance of angiosperm species throughout the families. Asteraceae, Fabaceae, Apocynaceae, Amaranthaceae, Solanaceae, Araceae, Poaceae, Cucurbitaceae, Euphorbiaceae and Rutaceae are the most dominant families and represented by 19, 11, 10, 9, 8, 8, 8, 7, 7 and 7 species. 72 medicinal plants have been recorded with their uses for cure many diseases. Status of occurrence has been recorded for proper conservation, management and utilization of taxa in the research area, resulting in 64 species (31.84%) are very common, 118 species (58.70%) are common, 14 species (6.97%) are rare and 5 species (2.49%) are threatened. For each species botanical name, local name, family, habit, type, abundance, phenology and voucher number were documented. From 201 species, 27% species are wild and 73% species are planted were recorded.

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Introduction:-

The term "angiosperms" refers to the flowering plants. Magnoliophyta, also known as Angiospermae, is the most diversified group of land plants, consisting of 416 families, 64 orders, over 13,000 genera, and 300,000 species. Similar to gymnosperms, angiosperms produce seeds, but they differ from them in a number of ways known as synapomorphies (derived characteristics). These traits include the production of fruits that contain seeds, flowers, and endosperm within the seeds. Etymologically, angiosperm defines a plant that produces seeds within an enclosure; they are fruiting plants, however they are usually referred to as flowering plants. Around 245-202 million years ago, flowering plants' embryonic cells split off from gymnosperms, while the earliest flowering plants were discovered 160 million years ago. They saw significant diversification throughout the Lower Cretaceous and developed widely

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about 120 million years ago, but it wasn't until 60–100 million years ago that they overtook conifers as the most common trees [16].

Angiosperms have a number of species that's are uses as food, specifically grains, vegetable, fruits, oils and spices etc. Species of many angiospermic family are used as food. For example, rice, wheat, maize from Poaceae family; potato, tomato, eggplant, chili peppers from Solanaceae family; bean, nut from Fabaceae family; cucumber, bottle gourd, sweet pumpkin, wax gourd from Cucurbitaceae family; cabbage, cauliflower, radish from Brassicaceae family. Many fruits species are found in angiosperms. For example, banana from Musaceae family; marmelos, lemon, sweet orange from Rutaceae family. Few species of angiosperms supply oils. For example, *Brassica* from Brassicaceae family; soybean from Fabaceae family; coconut from Arecaceae family; olive from Oleaceae family. Few spices are belong to the family of angiosperms. Such as, onion, garlic from Liliaceae family; zingier from Zingiberaceae family; cinnamon from Lauraceae family etc.

The angiosperms provide valuable pharmaceuticals. With the exception of antibiotics, almost all medicines are either 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. Some 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 periwinkle, *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 [19].

Angiospermic flora was carried out in Bangladesh by [3-6], [9-15], [17-18], [22-61], [63] and [66]. The aim of the present research was to explore and assesses the diversity and medicinal uses of angiosperms in sadar upazila of Gaibandha district, Bangladesh.

Materials and Methods:-

The research is based on fresh materials collected during twenty three field visits to sadar upazila of Gaibandha district, Bangladesh from July 2024 to June 2025 to cover the seasonal variations. The visits covered all types of habitats, particular river bank; char land area, slope, village grove, fruit gardens, fallow lands, crop fields, roadsides of the study area. Plant parts with either flowers or fruits were collected using traditional herbarium techniques to make voucher specimens for documentation. Collected angiosperms were identified with the help of various literature [1], [7] and [21]. For the current name and up-to-date nomenclature [8] and [20] were also consulted.

Results and Discussion:-

Diversity of angiospermic flora (flowering plants) at Sadar upazila of Gaibandha district, Bangladesh are analysis during July 2024 to June 2025. A total of 201 species under 65 families were collected and studied. Magnoliopsida (Dicotyledons) is 171 species and 55 families while Liliopsida (Monocotyledons) is represented by 30 species under 10 families. Amaranthaceae, Apocynaceae, Asteraceae, Cucurbitaceae, Euphorbiaceae, Fabaceae, Rutaceae and Solanaceae are represented by 9 (9.57%), 10 (10.64%), 19 (20.21%), 7 (7.45%), 7 (7.45%), 11 (1.70%), 7 (7.45%), 8 (8.51%) species, in Liliopsida, Araceae and Poaceae are the largest family with 8 (8.51%) and 8 (8.51%) species. (Table 1; Figure 4). Habit analysis shows that herbs, shrubs, climbers and trees are represented by 82 (40.79%), 48 (23.88%), 22 (10.95%) and 49 (24.38%) species respectively. (Table 2; Figure 1). Scientific name, local name, family, habit, type, abundance, phenology and voucher number were recorded species (Table 2).

Distribution of flowering plant in the families shows variations. The family Asteraceae, Fabaceae and Apocynaceae are represented by 19, 11 and 10 species. The family Amaranthaceae, Araceae, Solanaceae and Poaceae are represented by 9, 8, 8 and 8 species. The family Cucurbitaceae, Euphorbiaceae and Rutaceae; all are represented by 7 species. Lamiaceae, Rubiaceae are represented by 5 species. Malvaceae, Meliaceae, Moraceae and Arecaceae are represented by 4 species. Acanthaceae, Convolvulaceae, Lythraceae, Myrtaceae, Oleaceae, Phyllanthaceae, Piperaceae and Liliaceae are represented by 3 species. Anacardiaceae, Annonaceae, Apiaceae, Basellaceae, Crassulaceae, Lauraceae, Nyctaginaceae, Oxalidaceae, Rosaceae, Sapindaceae, Verbenaceae, Zingiberaceae are represented by 2 species. A single species in each was recorded by 29 families.

Distribution was measured only to indicate the status of occurrence of each species in this area and was based on eye estimation. A species which is distributed everywhere is called abundant (Very common); when it is distributed at certain place is called frequent (common). Present of a species is very few in number is called rare and present of one or two plants in selected area and have ability to extinct is called threatened. From, 201 species, 64(31.84%) very common species, 118(58.70%) common, 14(6.96%) rare and 5(2.49%) threatened (Table 2; Figure 3). From 201 species, wild species were 27% and planted species were 73% (Table 2; Figure 2).

Based on the study, a preliminary study of diversity of angiosperm at Sadar upazila of Gaibandha district, Bangladesh conducted and analysis on July 2024 to June 2025. A total of 201 species 65 families were collected (Table 1). The collected information of families were comparable with the result of other study area in different district in Bangladesh. About 245 species belonging to 195 genera under 95 families were recorded in Khagrachhari district [11]. About 374 species belonging to 264 genera under 84 families were recorded in Lawachara National Park [65]. About 153 species belonging to 120 genera under 52 families were recorded in Runtia sal forest [62]. About 425 species belonging to 321 genera 108 families were recorded in Rajshahi district [34]. About 302 species belonging to 243 genera 84 families were recorded in Bangladesh police Academy, Rajshahi [50]. No published information recorded on the diversity of angiosperm flora at Sadar upazila, Gaibandha district, Bangladesh.

Table 1: Showing the families of the plant species recorded.

SL no.	Family	No. of Herb species	No. of Shrub species	No. of Climber species	No. of Tree species
01.	Acanthaceae	1	2	-	-
02.	Amaranthaceae	9	-	-	-
03.	Anacardiaceae	-	-	-	2
04.	Annonaceae	-	-	-	2
05.	Apiaceae	2	-	-	-
06.	Apocynaceae	1	8	-	1
07.	Asteraceae	18	-	1	-
08.	Basellaceae	-	-	2	-
09.	Bignoniaceae	-	1	-	-
10.	Bombacaceae	-	-	-	1
11.	Brassicaceae	4	-	-	-
12.	Cactaceae	-	-	1	-
13.	Caryophyllaceae	1	-	-	-
14.	Cannabaceae	-	-	-	1
15.	Caricaceae	-	-	-	1
16.	Cleomaceae	1	-	-	-
17.	Combretaceae	-	-	1	1
18.	Convolvulaceae	-	1	2	-
19.	Cucurbitaceae	-	-	7	-
20.	Crassulaceae	2	-	-	-
21.	Dioscoreaceae	-	-	1	-
22.	Dilleniaceae	-	-	-	1
23.	Elaeocarpaceae	-	-	-	1
24.	Euphorbiaceae	2	4	-	1
25.	Fabaceae	3	2	1	5
26.	Lamiaceae	4	1	-	-
27.	Lauraceae	-	-	-	2
28.	Linderniaceae	1	-	-	-
29.	Lythraceae	-	2	-	1
30.	Malvaceae	1	3	-	-
31.	Mazaceae	1	-	-	-
32.	Meliaceae	-	-	-	4

33.	Menispermaceae	-	-	1	-
34.	Moraceae	-	-	-	4
35.	Moringaceae	-	-	-	1
36.	Myrtaceae	-	-	-	3
37.	Nyctaginaceae	1	-	1	-
38.	Oleaceae	-	3	-	-
39.	Onagraceae	1	-	-	-
40.	Oxalidaceae	1	-	-	1
41.	Phyllanthaceae	1	1	-	1
42.	Piperaceae	1	-	2	-
43.	Plantaginaceae	1	-	-	-
44.	Polygonaceae	1	-	-	-
45.	Portulacaceae	1	-	-	-
46.	Rhamnaceae	-	-	-	1
47.	Rosaceae	-	1	-	1
48.	Rubiaceae	-	4	-	1
49.	Rutaceae	-	2	-	5
50.	Sapindaceae	-	-	-	2
51.	Sapotaceae	-	-	-	1
52.	Solanaceae	4	4	-	-
53.	Urticaceae	1	-	-	-
54.	Vitaceae	-	1	-	-
55.	Verbenaceae	-	2	-	-
56.	Araceae	6	-	2	-
57.	Arecaceae	-	-	-	4
58.	Asphodaceae	1	-	-	-
59.	Commelinaceae	1	-	-	-
60.	Cyperaceae	1	-	-	-
61.	Liliaceae	3	-	-	-
62.	Musaceae	-	1	-	-
63.	Poaceae	3	5	-	-
64.	Pontedariaceae	1	-	-	-
65.	Zingiberaceae	2	-	-	-
	Total	82	48	22	49

Table 2: Assessment of angiosperm taxa in Sadar Upazila of Gaibandha district, Bangladesh.

SL. no.	Botanical name	Local name	Family	Ha bit	T y p e	Abu ndan ce	Flowering and fruiting time	Voucher no.
01.	Abroma augusta	Ulotkombol	Malvaceae	S	W	CN	Jun - Oct	MA 1
02.	Acacia auriculiformis	Akashmoni	Fabaceae	T	W	CN	Jan - Dec	MA 2
03.	Acmella uliginosa	unknown	Asteraceae	H	W	CN	Nov - Dec	MA 3
04.	Acmella paniculata	Nakful	Asteraceae	H	W	CN	Oct - Apr	MA 4
05.	Aegle marmelos	Bel	Rutaceae	T	P	CN	Apr - Aug	MA 5
06.	Ageratum conyzoides	Uchanti/ Shiyalmuti	Asteraceae	H	W	VC	TY	MA 6
07.	Achyranthes aspera	Apang	Amaranthaceae	H	W	CN	Sep - Apr	MA 7
08.	Alstonia scholaris	Chatim	Apocynaceae	T	W	R	Nov - May	MA 8
09.	Allamanda cathartica	Oloknonda	Apocynaceae	S	P	CN	RS	MA 9
10.	Albizia chinensis	Torul	Fabaceae	T	P	CN	Jun - Oct	MA 148

11.	Allium cepa	Piaj	Liliaceae	H	P	C	Feb- Apr	MA 10
12.	Allium sativum	Rosun	Liliaceae	H	P	C	Feb-Apr	MA 198
13.	Alocasia macrorrhizos	Mankochu	Araceae	H	W	VC	Jul - Oct	MA 11
14.	Alocasia fornicata	Shola kocu	Araceae	H	W	VC	Aug- Dec	MA 199
15.	Aloe vera	Ghritakumari	Asphodelaceae	H	P	CN	Mar- May	MA 12
16.	Alternanthera philoxeroides	Malancha	Amaranthaceae	H	W	CN	TY	MA 13
17.	Amaranthus dubius	Lal shak	Amaranthaceae	H	P	VC	Jan. -Dec.	MA 14
18.	Amaranthus spinosus	Katanotey	Amaranthaceae	H	W	VC	Jan. - Dec.	MA 15
19.	Amaranthus viridis	Shaknotey	Amaranthaceae	H	W	VC	Jan - Dec	MA 16
20.	Amaranthus blitum	Datashak	Amaranthaceae	H	P	VC	Jan-Dec	MA 17
21.	Annona squamosa	Aata	Annonaceae	T	P	CN	Mar - Jul	MA 18
22.	Aphanamixis polystachya	Pitraaj	Meliaceae	T	W	R	Feb - Apr	MA 19
23.	Artemisia verlotiorum	Unknown	Asteraceae	H	W	VC	Sep - Dec	MA 20
24.	Arachis hypogaea	China badam	Fabaceae	H	P	CN	Mar - Dec	MA 149
25.	Areca catechu	Supari	Arecaceae	T	P	VC	Jan -Dec	MA 21
26.	Artocarpus heterophyllus	Kathal	Moraceae	T	P	VC	Feb - Jul	MA 22
27.	Aster amellus L.	Aster	Asteraceae	H	P	CN	Jul - Oct	MA 150
28.	Averrhoa carambola	Kamranga	oxalidaceae	T	P	CN	Sep - Jan	MA 23
29.	Azadirachta indica	Neem	Meliaceae	T	P	VC	Mar -May	MA 24
30.	Baccaurea motleyana	Lotkon	Phyllanthaceae	T	P	CN	Jun - Aug	MA 25
31.	Bambusa vulgaris	Bash	Poaceae	S	P	VC	Ty	MA 151
32.	Basella alba	Puishak	Basellaceae	C	P	VC	Nov - Feb	MA 26
33.	Basella rubra	Puishak	Basellaceae	C	P	VC	Nov - Feb	MA 27
34.	Phanera variegata	Kanchon	Fabaceae	T	P	CN	Feb-Oct	MA 28
35.	Benincasa hispida	Chal kumra	Cucurbitaceae	C	P	CN	May-Sep	MA 29
36.	Bombax ceiba	Shimul	Bombaceae	T	P	CN	Feb - Apr	MA 30
37.	Borassus flabellifer	Tal	Arecaceae	T	P	VC	Jun - Aug	MA 152
38.	Bougainvillea spectabilis	Baganbilas	Nyctaginaceae	C	P	CN	Nov - Feb	MA 153
39.	Brassica nigra	Sorisha	Brassicaceae	H	P	VC	Mar - Jul	MA 31
40.	Cajanus cajan	Arhar	Fabaceae	S	P	CN	Dec - Apr	MA 32
41.	Caladium bicolor	Unknown	Araceae	H	P	R	May - Oct	MA 33
42.	Calendula officinalis	Calendula	Asteraceae	H	P	CN	WS	MA 154
43.	Calotropis procera	Akando	Apocynaceae	S	W	VC	SS	MA 34
44.	Capsicum annuum	Morich	Solanaceae	H	P	CN	TY	MA 35
45.	Cardamine flexuosa	Unknown	Brassicaceae	H	W	CN	Feb – Jul	MA 36
46.	Carica papaya	Papaya	Caricaceae	T	P	VC	TY	MA 37
47.	Carissa carandus	Kormoca	Apocynaceae	S	P	R	TY	MA 38
48.	Cascabela thevetia	Kolke	Apocynaceae	S	P	CN	SS	MA 39
49.	Catharanthus roseus	Noyontara	Apocynaceae	H	P	VC	TY	MA 40
50.	Centella asiatica	Thankuni	Apiaceae	H	W	VC	TY	MA 41
51.	Chenopodium album	Bothua	Amaranthaceae	H	W	VC	Dec - Mar	MA 42
52.	Chrysanthemum morifolium	Chondromollik a	Asteraceae	H	P	CN	WS	MA 43
53.	Cenchrus purpureus	Nepiar ghas	Poaceae	S	P	CN	Jan- Jun	MA 155
54.	Cinnamomum verum	Daruchini	Lauraceae	T	P	CN	Jan - Mar	MA 44
55.	Cinnamomum tamala	tejapatta	Lauraceae	T	P	CN	Feb- Oct	MA 156
56.	Citrus limon	Lebu	Rutaceae	T	P	VC	Mar - Sep	MA 45
57.	Citrus maxima	Jambura	Rutaceae	T	P	VC	Feb - Nov	MA 46

58.	Citrus reticulata	Komla	Rutaceae	T	P	CN	Jan - Nov	MA 157
59.	Citrus sinensis	Malta	Rutaceae	T	P	CN	Feb - Oct	MA 158
60.	Cleistanthus collinus	Unknown	Phyllanthaceae	S	W	CN	Jun- Feb	MA 47
61.	Cleome houtteana	Spider lili	Cleomaceae	H	P	CN	WS	MA 159
62.	Clitoria ternatea	Oporajita	Fabaceae	H	P	CN	Jan - Mar	MA 48
63.	Cleosia argentea	Morogful	Amaranthaceae	H	P	CN	WS	MA 160
64.	Clerodendrum viscosum	Vatpata	Lamiaceae	S	P	CN	Dec - Feb	MA 49
65.	Coccinia grandis	Telakucha	Cucurbitaceae	C	W	VC	Mar - Dec	MA 50
66.	Cocos nucifera	Narikel	Arecaceae	T	P	VC	Mar- Jul	MA 161
67.	Colocasia esculenta	Kochu	Araceae	H	P	VC	TY	MA 51
68.	Combretum indicum	Modhumonjuri	Combretaceae	C	P	CN	SS	MA 52
69	Commelina communis	Dholpata	Commelinaceae	H	W	VC	Jul - Oct	MA 53
70	Coriandrum sativum	Dhone	Apiaceae	H	P	VC	Dec - Feb	MA 54
71.	Croton bonplandianum	Bontulshi	Euphorbiaceae	H	P	VC	TY	MA 55
72.	Cuscuta reflexa	Sornolota	Convolvulaceae	C	W	VC	Aug- Mar	MA 56
73.	Cucurbita moschata	Misti kumra	Cucurbitaceae	C	P	CN	Mar - Oct	MA 57
74.	Cucumis sativus	Sosha	Cucurbitaceae	C	P	CN	Apr - Oct	MA 58
75.	Curcuma longa	Holud	Zingiberaceae	H	P	CN	Mar - Feb	MA 59
76.	Cyanthillium cinereum	Kuksima	Asteraceae	H	W	CN	Nov - Feb	MA 60
77.	Cynodon dactylon	Durba	Poaceae	H	W	VC	TY	MA 61
78.	Datura metel	Dhutura	Solanaceae	S	W	VC	Jan- Dec	MA 62
79.	Delonix regia	krishnochura	Fabaceae	T	P	CN	Apr - Sep	MA 163
80.	Dillenia indica	Chalta	Dilleniaceae	T	P	R	May-Aug	MA 162
81.	Dioscorea alata	Puralu	Dioscoreaceae	C	P	CN	Oct- Dec	MA 63
82.	Dianthus schinensis	unknown	Caryophyllaceae	H	P	CN	WS	MA 64
83.	Dahlia pinnata	Dahlia	Asteraceae	H	P	CN	WS	MA 164
84.	Ecbolium ligustrinum	Nilkata	Acanthaceae	S	W	R	Jan - May	MA 65
85.	Eichhornia crassipes	Kocuripana	Pontedariaceae	H	W	VC	TY	MA 165
86.	Elaeocarpus robustus	Jolpai	Elaeocarpaceae	T	P	CN	Mar - Dec	MA 66
87.	Epipremnum aureum	Money plant	Araceae	C	W	VC	TY	MA 67
88.	Eragrostis cilianensis	Unknown	Poaceae	H	W	VC	Jul - Oct	MA 68
89.	Euphorbia geroldii	Kata mukut	Euphorbiaceae	S	P	R	TY	MA 166
90.	Euphorbia hirta	Dudhiya	Euphorbiaceae	H	W	VC	TY	MA 69
91.	Euphorbia tirucalli	Pencil cactus	Euphorbiaceae	S	P	R	Sep - Dec	MA 167
92.	Eucalyptus tereticornis	Uklyptus	Myrtaceae	T	P	VC	TY	MA 70
93.	Ficus benghalensis	Bot	Moraceae	T	P	CN	May - Jul	MA 71
94.	Ficus hispida	Khoksa	Moraceae	T	W	VC	TY	MA 72
95.	Ficus religiosa	Pakur	Moraceae	T	W	CN	Jul - Nov	MA 73
96.	Gardenia jasminoides	Gondhoraj	Rubiaceae	S	P	CN	Mar - Jul	MA 168
97.	Gamochaeta purpurea	Unknown	Asteraceae	H	W	CN	Mar - Sep	MA 200
98.	Glycosmis pentaphylla	Motkila	Rutaceae	S	W	R	Apr - Oct	MA 74
99.	Hibiscus rosa-sinensis	Joba	Malvaceae	S	P	VC	TY	MA 75
100.	Hymenocallis littoralis	Spider lili	Liliaceae	H	W	R	RS	MA 169

101.	<i>Ixora coccinea</i>	Rongon	Rubiaceae	S	P	CN	TY	MA 76
102.	<i>Ipomoea aquatica</i>	Kolmishak	Convolvulaceae	C	P	CN	TY	MA 77
103.	<i>Ipomoea carnea</i>	Dhol kolmi	Convolvulaceae	S	W	CN	TY	MA 78
104.	<i>Justicia adhatoda</i>	Basok	Acanthaceae	S	W	CN	TY	MA 79
105.	<i>Justicia gendarussa</i>	Jogothmadan	Acanthaceae	H	W	CN	Apr - Aug	MA 80
106.	<i>Jasminum sambac</i>	Beli	Oleaceae	S	P	CN	Feb - Aug	MA 170
107.	<i>Jasminum pubescens</i>	Kund	Oleaceae	S	P	CN	TY	MA 81
108.	<i>Kalanchoe pinnata</i>	Pathorkuchi	Crassulaceae	H	P	CN	Jan - Mar	MA 82
109.	<i>Kalanchoe blossfeldiana</i>	Unknown	Crassulaceae	H	P	CN	Jan - Mar	MA 83
110.	<i>Kyllinga brevifolia</i>	Unknown	Cyperaceae	H	W	CN	Feb - Apr	MA 84
111.	<i>Lablab purpureus</i>	Shim	Fabaceae	C	P	VC	Nov- Mar	MA 85
112.	<i>Lactuca sativa</i>	Lettuce	Asteraceae	H	P	R	Nov - Apr	MA 171
113.	<i>Lagerstroemia speciosa</i>	Jarul	Lythraceae	T	P	CN	Apr - Aug	MA 86
114.	<i>Lagenaria siceraria</i>	Lau	Cucurbitaceae	C	P	VC	WS	MA 87
115.	<i>Lantana camara</i>	Chotra	Verbenaceae	S	W	CN	TY	MA 88
116.	<i>Lasia spinosa</i>	Jongermai	Araceae	H	W	T	Jan - Mar	MA 89
117.	<i>Lawsonia inermis</i>	Mehedi	Lythraceae	S	P	CN	Jun - Oct	MA 90
118.	<i>Leea indica</i>	Kukur jiva	Vitaceae	S	W	CN	Apr - Dec	MA 91
119.	<i>Leucas aspera</i>	Setodron	Lamiaceae	H	W	CN	TY	MA 92
120.	<i>Leonurus japonicus</i>	Roktodron	Lamiaceae	H	W	CN	TY	MA 172
121.	<i>Leucaena leucocephala</i>	Epilepil	Fabaceae	T	W	CN	Jul - Oct	MA 173
122.	<i>Lindernia dubia</i>	Unknown	Linderniaceae	H	W	CN	Jul- Dec	MA 174
123.	<i>Lippia alba</i>	Sada motmotiya	Verbenaceae	S	W	CN	TY	MA 93
124.	<i>Lepidium didymum</i>	Unknown	Brassicaceae	H	W	VC	Mar - Sep	MA 94
125.	<i>Lepisanthes rubiginosa</i>	Chagnolnadi	Sapindaceae	T	W	T	TY	MA 95
126.	<i>Litchi chinensis</i>	Lichu	Sapindaceae	T	P	CN	Apr - May	MA 96
127.	<i>Ludwigia epilobioides</i>	Bon lobongo	Onagraceae	H	W	VC	Jun - Nov	MA 97
128.	<i>Luffa aegyptiaca</i>	Koda	Cucurbitaceae	C	P	CN	TY	MA 98
129.	<i>Mallotus philippensis</i>	Lalguti	Euphorbiaceae	T	W	R	Oct - Mar	MA 99
130.	<i>Malvaviscus arboreus</i>	Morich joba	Malvaceae	S	P	CN	May - Nov	MA 100
131.	<i>Malva parviflora</i>	Napa	Malvaceae	H	P	CN	Oct - Jan	MA 101
132.	<i>Mangifera indica</i>	Aam	Anacardiaceae	T	P	VC	Jan - Apr	MA 102
133.	<i>Manihot esculenta</i>	Shimul alu	Euphorbiaceae	S	P	CN	Sep - Jan	MA 175
134.	<i>Manilkara zapota</i>	Sofeda	Sapotaceae	T	P	CN	TY	MA 103
135.	<i>Mazus pumilus</i>	Nakcimni	Mazaceae	H	W	VC	Dec - Oct	MA 104
136.	<i>Megathyrsus maximus</i>	Unknown	Poaceae	S	W	VC	TY	MA 105
137.	<i>Melia azedarach</i>	Ghoraneem	Meliaceae	T	P	CN	Mar -May	MA 106
138.	<i>Meyna laxiflora</i>	moyna kata	Rubiaceae	S	W	T	Jan - Mar	MA 176
139.	<i>Mimosa pudica</i>	Lojjaboti	Fabaceae	H	W	CN	Sep - Nov	MA 177
140.	<i>Mirabilis jalapa</i>	Sondha maloti	Nyctaginaceae	H	P	CN	TY	MA 107
141.	<i>Mentha spicata</i>	Pudina	Lamiaceae	H	P	CN	Jun - Aug	MA 108
142.	<i>Mikania micranthus</i>	Ashamlata	Asteraceae	C	W	VC	TY	MA 109
143.	<i>Momordica charantia</i>	Korolla	Cucurbitaceae	C	P	CN	Jul - Nov	MA 110
144.	<i>Moringa oleifera</i>	Sojina	Moringaceae	T	P	CN	Jan - Aug	MA 111
145.	<i>Mussaenda erythrophylla</i>	Mussaenda	Rubiaceae	S	P	CN	TY	MA 178

146.	Musa paradisiaca	kaca kola	Mussaceae	S	P	CN	TY	MA 179
147.	Murraya paniculata	Kamini	Rutaceae	S	P	CN	Mar - Oct	MA 112
148.	Nicotiana tabacum	Tamak	Solanaceae	H	P	VC	SS	MA 201
149.	Neolamarekia cadamba	Kodom	Rubiaceae	T	P	CN	May - July	MA 180
150.	Nerium oleander	Korobi	Apocynaceae	S	P	CN	Jan - Jul	MA 113
151.	Nyctanthes arbor-tristis	Sheuli	Oleaceae	S	P	CN	Oct - Feb	MA 114
152.	Ocimum tenuiflorum	Tulshi	Lamiaceae	H	W	VC	Jun - Feb	MA 115
153.	Oryza sativa	Dhan	Poaceae	H	P	VC	Jul - Sep	MA 181
154.	Ouret lanata	Unknown	Amaranthaceae	H	W	VC	May - Oct	MA 116
155.	Oxalis corniculata	Amrul	Oxalidaceae	H	W	CN	TY	MA 117
156.	Parthenium hysterophorus	Parthenium	Asteraceae	H	W	CN	TY	MA 118
157.	Peperomia pellucida Kunth	Luchi pata	Piperaceae	H	W	VC	TY	MA 119
158.	Persicaria barbata	Bishkathal	Polygonaceae	H	W	VC	Aug - Apr	MA 120
159.	Phoenix sylvestris	Khejur	Arecaceae	T	P	R	Dec - Jul	MA 182
160.	Phyllanthus niruri	Vuiamla	Phyllanthaceae	H	W	CN	Jul - Sep	MA 121
161.	Physalis angulata	Fotka	Solanaceae	H	W	CN	WS	MA 122
162.	Piper longum	Pepul	Piperaceae	C	W	CN	Oct - Jan	MA 123
163.	Piper betle	Pan	Piperaceae	C	P	T	Dec-Apr	MA 183
164.	Pistia stratiotes	Topa pana	Araceae	H	W	VC	TY	MA 184
165.	Polyalthia longifolia	debbaru	Annonaceae	T	P	CN	Mar - May	MA 124
166.	Portulaca oleracea	Portulaca	Portulacaceae	H	W	CN	May - Aug	MA 125
167.	Plumeria pudica	Nagcapa	Apocynaceae	S	P	CN	TY	MA 185
168.	Plumeria alba	Kathgolap	Apocynaceae	S	P	CN	SS	MA 186
169.	Pouzolzia zeylanica	Dudhgachi	Urticaceae	H	W	CN	TY	MA 126
170.	Prunus domestica	Alu bokhara	Rosaceae	T	P	R	Aug - Sep	MA 187
171.	Psidium guajava	Peyara	Myrtaceae	T	P	VC	Mar - Sep	MA 127
172.	Punica granatum	Dalim	Lythraceae	S	P	CN	Jan - Aug	MA 128
173.	Rauvolfia serpentina	Sarpogondha	Apocynaceae	S	W	CN	TY	MA 129
174.	Raphanus sativus	Mula	Brassicaceae	H	P	VC	Jan - May	MA 130
175.	Ricinus communis	Verenda	Euphorbiaceae	S	W	T	Jan - Oct	MA 188
176.	Rosa chinensis	Golap	Rosaceae	S	P	VC	TY	MA 131
177.	Saccharum spontaneum	Kashphul	Poaceae	S	W	CN	Jun - July	MA 189
178.	Scoparia dulcis	Bondhone	Plantaginaceae	H	W	CN	TY	MA 132
179.	Senna sophera	Kolkashunda	Fabaceae	S	W	CN	Dec - Mar	MA 133
180.	Selenicereus undatus	Dragon	Cactaceae	C	P	CN	SS	MA 190
181.	Solanum lycopersicum	Tomato	Solanaceae	S	P	CN	Sep - Apr	MA 134
182.	Solanum melongena	Begun	Solanaceae	S	P	VC	Oct - Mar	MA 135
183.	Solanum nigrum	Tetbegun	Solanaceae	S	W	CN	Jan - Dec	MA 136
184.	Solanum tuberosum	Alu	Solanaceae	H	P	CN	Oct - Feb	MA 137
185.	Sonchus arvensis	Bonpalang	Asteraceae	H	W	CN	WS	MA 138
186.	Sphagneticola trilobata	Vringoraj	Asteraceae	H	W	CN	TY	MA 139
187.	Spondias pinnata	Aamra	Anacardiaceae	T	P	CN	Mar - Jul	MA 140
188.	Stephania japonica	Tepa mendi	Menispermaceae	C	w	VC	Mar -Aug	MA 141
189.	Swietenia mahagoni	Mahagoni	Meliaceae	T	P	VC	Apr - Sep	MA 191
190.	Synedrella nodiflora	Surjonkonna	Asteraceae	H	W	CN	July - Oct	MA 192
191.	Syzygium cumini	Jam	Myrtaceae	T	P	VC	Mar -Jun	MA 142

192.	Syngonium podophyllum	Arrowhead plant	Araceae	C	W	VC	SS	MA 143
193.	Tecoma stans	Chondropova	Bignoniaceae	S	P	CN	Dec - Feb	MA 193
194.	Tagetes erecta	Gada	Asteraceae	H	P	CN	WS	MA 144
195.	Terminalia arjuna	Arjun	Combretaceae	T	P	CN	Apr - Jul	MA 194
196.	Trema orientale	Jibon	Cannabaceae	T	W	CN	Jan - Jun	MA 145
197.	Tridax procumbens	Tridhara	Asteraceae	H	W	VC	Jan- Dec	MA 146
198.	Zea mays	Vutta	Poaceae	S	P	CN	Mar - Jul	MA 195
199.	Ziziphus mauritiana	Boroi	Rhamnaceae	T	P	VC	Sep - Mar	MA 147
200.	Zingiber officinale	Ada	Zingiberaceae	H	P	CN	Mar - Feb	MA 196
201.	Zinnia elegans	Zinnia	Asteraceae	H	P	CN	WS	MA 197

H = Herb, S= Shrub, T = Tree, C= Climber, P= Planted, W= Wild, VC = Very Common, C = Common, R= Rare, WS= Winter Season, SS = Summer Season, TY = Throughout of the Year, RS = Rainy Season.

Medicinally important Plants:-

The important medicinal plants at Sadar upazila of Gaibandha district were carried out. A total of 72 medicinal plant species were collected and recorded for their use in various ailments. The local people use these medicinal plants to treat the following diseases: abscess, asthma, abortion, cough, cold, small pox, constipation, dysentery, diarrhea, diabetes, eczema, fever, fracture of bone, headache, heart disease, itches, jaundice, menstrual disease, paralysis, piles, skin diseases, snake bite, toothache, vomiting, worm, wound, and others (Table 3). Different plant parts of different spp. are used as medicine for treating various diseases leaves,, fruits, whole plants, roots, barks, seeds, stem, flower, rhizome, Petiole and others were used as medicine (Table 3). There are scientific names, local name, habits, families, medicinal uses and plant part(s) used for each species. The study also recommended that the current information on local people's therapeutic use of plants could be utilized in future botanical and pharmacological research to find new medication sources.

The significant medicinal angiosperm were collected from Sadar upazila of Gaibandha district. 72 medicinal plants have been recorded with their medicinal values which can cures various of diseases and these medicinal plants used by the local peoples (Table 3). Identifying of common medicinal plants in the study is in agreement with [2], [22], [29], [38] and [67-85].

Table 3: List of medicinal plants and their use in different ailments by the local people at Sadar Upazila of Gaibandha District, Bangladesh.

SL. No.	Scientific name	Local name	Family name	Habit	Used parts	Medicinal uses
01.	Abroma augustaL.	Ulotkombol	Malvaceae	Shrub	Root, bark	Root, bark is used in irregular menses and pain.
02.	Aegle marmelos(L.) Corr.	Bel	Rutaceae	Tree	Fruits	Unripe fruit is used to cure dysentery, diarrhoea and ripe fruit for constipation.
03.	Allium cepaL.	Piyaj	Liliaceae	Herb	Rhizome	Used to treat cough and asthma.
04.	Allium sativumL.	Rosun	Liliaceae	Herb	Bulb	Bulb is used as tonic agent, stimulant, diuretic and stoma-chic.
05.	Alternanthera philoxeroides(Mart.) Griseb.	Malancha	Amaranthaceae	Herb	Whole plant	Plant juice is used for fever.
06.	Alstonia scholarisBr.	Chatim	Apocynaceae	Shrub	Sap, gum and roots	Cancer
07.	Aloe veraL.	Ghrita	Asphodelaceae	Herb	Leaves	Used to treat gastric

		kumari				problem, external burn.
08.	<i>Amaranthus dubius</i> L.	Lal shak	Amaranthaceae	Herb	Whole plants	Helps to increase vitamin A in body, diarrhea, ulceretc.
09.	<i>Amaranthus blitum</i> L.	Data shak	Amaranthaceae	Herb	Whole plant	Used as stoma-chic.
10.	<i>Amaranthus spinosus</i> L.	Katanotey	Amaranthaceae	Herb	Whole plant	It is useful in leprosy, piles.
11.	<i>Annona squamosa</i> L.	Aata	Annonaceae	Tree	Leaves	Leaves is used to treat cancerous tumors as a vermicide.
12.	<i>Artocarpus heterophyllus</i> Lamk.	Kathal	Moraceae	Tree	Young leaf	Young leaves used in skin disease.
13.	<i>Averrhoa carambola</i> L.	Kamranga	Oxalidaceae	Tree	Fruit	Used to increase antioxidant level, improve digestive system.
14.	<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	Tree	Leaves, bark	Treating allergic problem, wound, etc.
15.	<i>Basella alba</i> L.	Puishak	Basellaceae	Climber	Leaves, stem	It has been used for the treatment of many disease like anemia, dysentery, wound healing.
16.	<i>Benincasa hispida</i> (Thunb.) Cogn.	Chal kumra	Cucurbitaceae	Climber	Fruit	Fruits are used in case of jaundice, menstrual problem and constipation.
17.	<i>Brassica nigra</i> (L.) Koch.	Sorisha	Brassicaceae	Herb	Seed, leaves	Oil collected from seed used to treat cold, cough and asthma. Leaves helps to increased eyes power.
18.	<i>Cajanus cajan</i> (L.) Huth.	Arhor daal	Fabaceae	Shrub	Seed, leaves	Juice of leaves used to treat jaundice. Seeds used to treat dysentery.
19.	<i>Calotropis procera</i> Br.	Akando	Apocynaceae	Shrub	Root	Root, bark is useful for treating chronic cases, indigestion and constipation.
20.	<i>Capsicum annum</i> L.	Morich	Solanaceae	Herb	Fruit	Commonly used for nerve pain and digestion problems.
21.	<i>Carica papaya</i> L.	Papaya	Caricaceae	Tree	Fruit	Used to treat constipation and gastric problem.
22.	<i>Catharanthus roseus</i> (L.) G. Don.	Noyontara	Apocynaceae	Herb	Leaf	Leaf juice is applied to wasp sting, diabetes.
23.	<i>Carissa carandus</i> L.	Kormoca	Apocynaceae	Shrub	Fruit	It is used to treat

						cold, cough, diarrhoea, inflammation etc.
24.	Centella asiatica(L.) Urban.	Thankuni	Apiaceae	Herb	Whole plant	Plants used as alternative, astringent, tonic and diuretic.
25.	Cinnamomum tamalaNees.	Tejpata	Lauraceae	Tree	Leaf	Leaf juice is useful for cough.
26.	Citrus limon(L.) Burm.f.	Lebu	Rutaceae	Tree	Fruits	Used against skin irritation and nausea.
27.	Citrus maxima(Burm.) Merr.	Jambura	Rutaceae	Tree	Fruits	Ripe fruits are used to treat cold and cough.
28.	Citrus reticulataBlanco.	Komla	Rutaceae	Tree	Fruits	Used to treat cough, gastrointestinal distension and vomiting.
29.	Citrus sinensis(L.) Osbeck.	Malta	Rutaceae	Tree	Fruits	Fruit juice is used for preventing high blood pressure, ulcer etc.
30.	Coccinia grandis(L.) Osbeck.	Telakucha	Cucurbitaceae	Climber	Whole plant	Juice of the plant is used in diabetes.
31.	Cocos nuciferaL.	Narikel	Arecaceae	Tree	Fruits	Water of unripe fruit is largely used as cooling in diarrhoea and dysentery.
32.	Coriandrum sativumL.	Dhonr	Apiaceae	Herb	Fruits	Improves appetite.
33.	Cucurbita moschataDuch.	Misti kumra	Cucurbitaceae	Climber	Fruit	Fruit pulp is used as a poultice to burns.
34.	Cucumis sativusL.	Sosha	Cucurbitaceae	Climber	Fruits	Fruits helps to prevent dehydrate, heat rash.
35.	Curcuma longaL.	Holud	Zingiberaceae	Herb	Rhizome	Used to treat allergic problem, skin burn.
36.	Cynodon dactylonPers.	Durba	Poaceae	Herb	Whole plant	To stop bleeding and wounds.
37.	Elaeocarpus robustus Roxb.	Jolpai	Elaeocarpaceae	Tree	Fruits	It is used in dysentery, diarrhoea and diabetes.
38.	Ficus benghalensisL.	Bot	Moraceae	Tree	Young bud, root	Used in bronchitis, dysentery and diarrhea. Juice obtained from aerial roots is used to obstinate vomiting.
39.	Hibiscus rosa-sinensisL.	Joba	Malvaceae	Shrub	Flower	Flower buds relieve body burning.
40.	Ipomoea aquaticaForsk.	Kolmi shak		Climber	Whole plant	Used to treat constipation, increase nutrition level.
41.	Justicia adhatodaL.	Basok	Acanthaceae	Shrub	Leaves,	Most of the parts of

					roots, flowers and bark	the plant are used to treat colds, cough and asthma.
42.	Lablab purpureus (L.) Sweet.	Shim	Fabaceae	Climber	Seeds, Leaves	Leaves are used to treat ringworm, seeds have stomachic, tonic.
43	Lagenaria siceraria(Mol.) Stan.	Lau	Cucurbitaceae	Climber	Fruits	It is used to treat piles, ulcers, hypertertion.
44.	Lawsonia inermisL.	Mehedi	Lythraceae	Shrub	Leaf	Used for old skin diseases. Leaves paste mixed with neem paste and water administered for gastrointestinal ulcers
45.	Litchi chinensisSonn.	Lichu	Sapindaceae	Tree	Fruits	It is used to treat cough, stomach ulcer, diabetes etc.
46.	Luffa aegyptiacaMill.	Koda	Cucurbitaceae	Climber	Fruits	Used as laxative and diuretic.
47.	Malva parvifloraL.	Napa shak	Malvaceae	Herb	Whole plant	Used to treat gastritis, wound, bladder ulcers, constipation.
48.	Mangifera indicaL.	Aam	Anacardiaceae	Tree	Fruits	Used as a laxative, tonic, stoma-chic.
49.	Manilkara zapota(L.) P. Royen.	Sofeda	Sapotaceae	Tree	Leaves	Leaves are used to treat colds, cough and diarrhoea.
50.	Melia azedarachL.	Ghoraneem	Meliaceae	Tree	Leaves	Widely used to treat various skin diseases.
51.	Mentha spicataL.	Pudina	Lamiaceae	Herb	Leaves	It is used for the treatment of fever, asthma, digestive problem and sedative agents.
52.	Moringa oleiferaLamk.	Sojina	Moringaceae	Tree	Root, seed	Roots extract juice is used for fever. Seed oil is given for rheumatism.
53.	Momordica charantiaL.	Korolla	Cucurbitaceae	Climber	Fruits	It is used to treat allergic problem, wound, diabetes.
54.	Moringa oleiferaLamk.	Sojina	Moringaceae	Tree	Fruits, leaves	Helps to reduce inflammation, reduce pain, diabetes and stomach ulcers.
55.	Musa paradisiacaL.	Kacha kola	Mussaceae	Shrub	Fruits	Mainly used to treat dysentery, diarrhoea and gastric problem.
56.	Ocimum tenuiflorumL.	Tulshi	Lamiaceae	Herb	Leaf	Used to treat cold ,cough and bronchitis.
57.	Oxalis corniculataL.	Amrul	Oxalidaceae	Herb	Whole	Juice of the plants

					plant	used for the treatments of piles.
58.	Persicaria barbata (L.) H.Hara	Bishkathal	Polygonaceae	Herb	Whole plant	Used to treat relieve pain of duck injuries.
59.	Piper longumL.	Pepul	Piperaceae	Climber	Leaves	Used for the treatment of asthma, bronchitis and gonorrhoea.
60.	Piper betleL.	Pan	Piperaceae	Climber	Leaves	Helps to increase digestion.
61.	Psidium guajava(L.) Bat.	Peyara	Myrtaceae	Tree	Fruits	Treatment of gastrointestinal diseases, simple diarrhea, wound and caries.
62.	Punica granatumL.	Dalim	Lythraceae	Shrub	Fruits	It is used to treat ulcers, diarrhea and enhance blood flow.
63.	Ricinus communisL.	Bherenda	Euphorbiaceae	Shrub	Leaves	Juice of tender leaves is given with sugar in dysentery.
64.	Solanum lycopersicumL.	Tomato	Solanaceae	Shrub	Fruits	It helps cancer prevention, high blood pressure, osteoarthritis.
65.	Solanum melongenaWall.	Begun	Solanaceae	Shrub	Fruits	It is easily digestible and prevent gastric problem.
66.	Solanum tuberosumL.	Alu	Solanaceae	Herb	Tuber	It helps to increase carbohydrate level and increase energy level to our body.
67.	Spondias pinnata(L.f.) Kurz.	Aamra	Anacardiaceae	Tree	Fruits	Mainly helps to dry shores, increase nutrition level in the body.
68.	Stephania japonica(Thunb.) Miers.	Akandi/ Tepa mendi	Menispermaceae	Climber	Leaves	Its leaves given to the child head to reduce cold, cough and asthma, fever.
69.	Syzygium cumini(L.) Skeel.	Jam	Myrtaceae	Tree	Fruits	It is used for the treatment of chronic diarrhea, gastric problem, diabetes and dysentery.
70.	Tagetes erectaL.	Gada	Asteraceae	Herb	Leaves	Helps to stop bleeding from wounds
71.	Terminalia arjuna(Roxb.) Wt. & Arn.	Arjun	Combretaceae	Tree	Bark, fruits	Its bark used for cardiovascular disease, asthma, ulcer and cough
72.	Zingiber officinaleRosc.	Ada	Zingiberaceae	Herb	Rhizome	Helps to remove cold, cough, asthma and gastric problem.

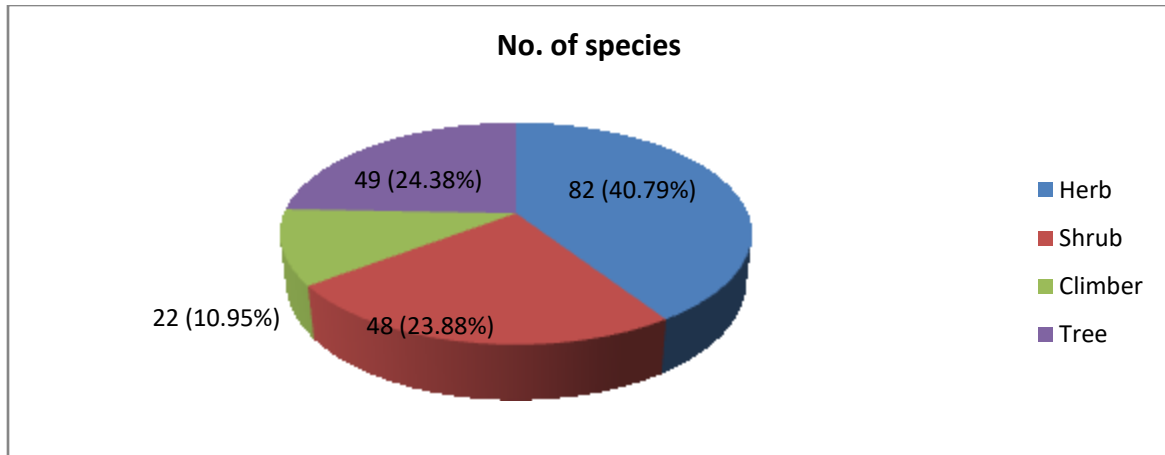


Figure 1. Habit diversity of the recorded species

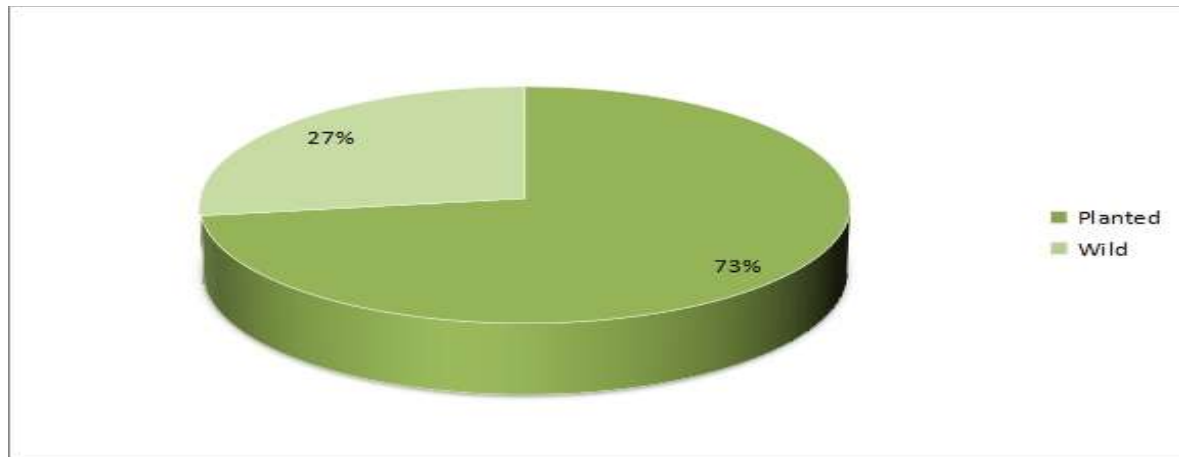


Figure 2. Recorded relative occurrence in the study area

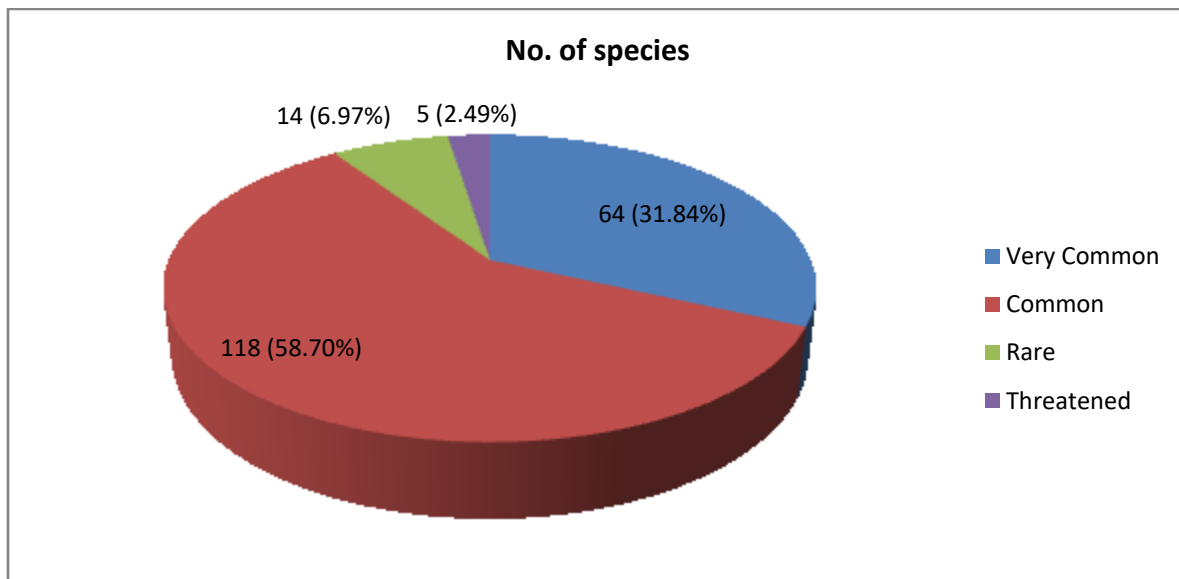


Figure 3. Recorded abundance in the study area

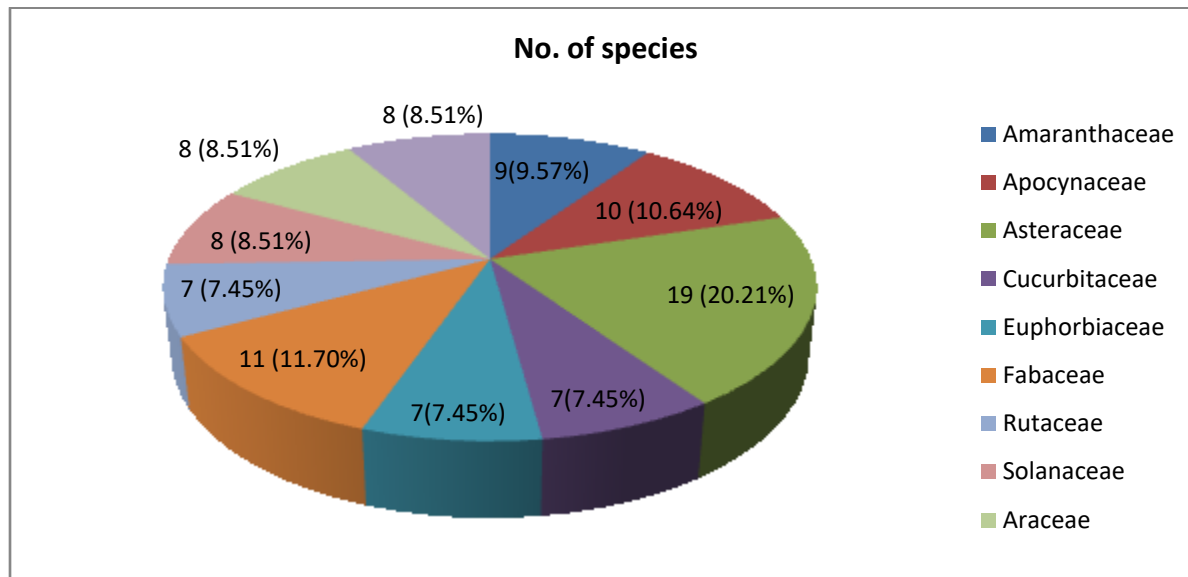


Figure 4. Recorded dominant families in the study area

Conclusion:-

Diversity of angiospermic flora at Sadar upazila of Gaibandha district, Bangladesh were carried out during July 2024 to June, 2025. A comprehensive collection of angiosperms and a floristic analysis have been conducted over the research area. A total of 201 species belonging to 177 genera and 65 families were recorded. Habitat analysis of plant shows that herbs, shrubs, climbers and trees are represented by 82, 48, 22 and 49 species, respectively. There is variability in the abundance of angiosperm species throughout the families. Asteraceae, Fabaceae, Apocynaceae, Amaranthaceae, Solanaceae, Araceae, Poaceae, Cucurbitaceae, Euphorbiaceae and Rutaceae are the most dominant families and represented by 19, 11, 10, 9, 8, 8, 8, 7, 7 and 7 species.

72 medicinal plants have been recorded with their uses for cure many diseases. Status of occurrence has been recorded for proper conservation, management and utilization of taxa in the research area, resulting in 64 species (31.84%) are very common, 118 species (58.70%) are common, 14 species (6.97%) are rare and 5 species (2.49%) are threatened. For each species botanical name, local name, family, habit, type, abundance, phenology and voucher number were documented. From 201 species, 27% species are wild and 73% species are planted were recorded. Out of the recorded species, *Asparagus racemosus* L., *Cyathula prostrata*(L.) Blume., *Glinus oppositifolius* (L.) Aug.

DC., *Abroma augusta* L., *Paederia foetida* L., *Bixa orellana* L., *Baccaurea ramiflora* Lour., *Bacopa monnieri* (L.) Pennel., *Celosia cristata* L., *Aphanamixis polystachya* Wall., *Diospyros montana* Roxb., *Rumex vesicarius* L., *Dillenia indica* L., *Enhydra fluctuans* Lour., *Garcinia cowa* Roxb., *Vitis quadrangularis* Wall, *Litsea monopetala* (Roxb.) Pers., *Phyllanthus acidus* (L.) Skeels, *Syzygium samarangense* Merr. & Perry and *Terminalia bellirica* (Gaertn.) Roxb. were rare species in the study area. It was concluded that overutilization, over the collection, over exploitation, habitat degradation, overharvesting, deforestation, population explosion and over grazing are the conspicuous biotic stresses which severely threatened the flora in the area which affect the population sustainability on earth crust. Therefore, efforts should be undertaken through ex-situ and in situ conservation approaches, public awareness, and habitats protection to ensure for increase diversity of angiospermic plants.

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