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ANGIOSPERMS IN GOBINDAGANJ UPAZILA OF GAIBANDHA DISTRICT, BANGLADESH

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Abstract

Angiosperms at Gobindaganj Upazila of Gaibandha district, Bangladesh was studied from January to December 2018. An extensive floristic survey and angiosperms collection have been made throughout the study area. A total of 295 species belonging to 246 genera under 89 families were recorded. Plant habit analysis shows that herbs, shrubs, climbers and trees are represented by 47.45%, 15.93%, 12.20% and 24.40%, respectively. Distribution of angiosperm species in the families shows variation. Asteraceae is the most dominant family represented by 25 species, followed by Fabaceae (19 species), Euphorbiaceae (18 species), Cucurbitaceae (17 species), Acanthaceae (11 species), Solanaceae (11 species), Amaranthaceae (10 species) and Apocynaceae (10 species). 44 families are represented by a single species each while 37 families are represented by 2 to 8 species each. Status of occurrence has been recorded for proper conservation management and sustainable utilization of the taxa which show 218 (73.89%) to be common, 63 (21.35%) as rare, 10 (3.38%) as vulnerable, and 4 (1.35%) are found as endangered in the study area. For each species scientific name, voucher number, Bangla name, English name, habit, status of occurrence and flowering time were recorded.

Introduction

The flowering plants, also known as angiosperms, Angiospermae or Magnoliophyta, are the most diverse group of land plants, with 64 orders, 416 families, approximately 13,000 known genera and 300,000 known species (Christenhusz and Byng, 2016). Angiosperms are seed-producing plants like the gymnosperms and can be distinguished from the gymnosperms by a series of synapomorphies (derived characteristics). These characteristics include flowers, endosperm within the seeds, and the production of fruits that contain the seeds. Etymologically, angiosperm means a plant that produces seeds within an enclosure; they are fruiting plants, although more commonly referred to as flowering plants. The ancestors of flowering plants diverged from gymnosperms around 245-202 million years ago, and the first flowering plants known to exist are from 160 million years ago. They diversified enormously during the Lower Cretaceous and became widespread around 120 million years ago, but replaced conifers as the dominant trees only around 60-100 million years ago (Lindley, 1830).

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*

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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 (Naik, 2003).

Over the last few decades several attempts have been made on the floristic studies in Bangladesh, particularly in the forest and protected areas (Khan and Afza, 1968; Khan and Banu, 1972; Khan and Hassan, 1984; Rahman and Hassan, 1995; Uddin *et al.*, 2013; Khan and Huq, 2001; Uddin and Hassan, 2010; Tutul *et al.*, 2010; Arefin *et al.*, 2011; Uddin and Hassan, 2012). Studies on angiosperm flora in different districts and Upazilas of Bangladesh are limited (Islam *et al.*, 2009; Rahman *et al.*, 2013; Moniruzzaman *et al.*, 2012; Rahman and Alam, 2013). However, there has been no floristic study in Gobindaganj Upazila of Gaibandha district, Bangladesh.

Materials and Methods

Study area: Gobindaganj is an upazila of Gaibandha district under the division of Rangpur. It is one of the largest upazila in Bangladesh including 17 unions and 1 municipality. Gobindaganj is located at 25.1333°N3' and 89.391°E. It is bounded by Ghoraghat and Polashbari upazilas on the north, Sonatala and Shibgonj upazilas on the south, Saghatta and Polashbari uazilas on the east, Panchbibi and Kalia upazilas on the west. One fourth of the total area of the upazila is included in the Barind Tract. It has 79464 households and a total area of 481.66 Sq. Km. As of 2011 Bangladesh census, Gobindaganj has a population of 714591. Males constitute 50.89% of the population, and females 49.11%. This upazila's adult population is 205204. Soil texture was determined by hydrometer method and soil P^H was measured in a 1:2.5. Soil water suspension measured by glass clatrode pH meter. This is the best soil for the growth of various plants. The study area has tropical monsoon climate. It is characterized by hot humid summers and generally mild winters and rainfall. The summer season commerce early in the March with the cessation of the Northerly wind. The winter season (November-January) which is cool and with little rainfall; the summer season (June-October) is warm and with no rainfall. The maximum monthly temperature can reach up to 37.78°C during April and minimum monthly temperature 7.78°C during January (BPC, 2001).

Methodology: The work is based on fresh materials collected during twenty seven visits to Gobindhaganj Upazila of Gaibandha, Bangladesh from January 2018 to December 2018 to cover the seasonal variations. The visits covered all types of habitats, particular river bank, slope, village grove, fruit gardens and roadsides of the study area. Each trip lasted for eight days. Plant parts with either flower or fruits were 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. Standard literature such as Hooker (1877), Prain (1903), and Ahmed *et al.* (2008-2009) were consulted for identification. For nomenclature Pasha and Uddin (2013) and Huq (1986) were also consulted. The specimens are deposited in the Herbarium, Department of Botany, Rajshahi University, Bangladesh for future reference.

Results and Discussion

Angiosperm diversity at Gobindaganj upazila of Gaibandha district, Bangladesh was investigated during January to December 2018. A total of 295 species belonging to 246 genera

under 89 families were recorded (Table 1). Of these, Magnoliopsida (Dicotyledons) is represented by 261 species under 213 genera and 73 families while Liliopsida (Monocotyledons) is represented by 34 species under 33 genera and 16 families. Habit analysis shows that herbs, shrubs, climbers and trees are represented by 47.45%, 15.93%, 12.20%, 24.40% species, respectively (Fig.1).

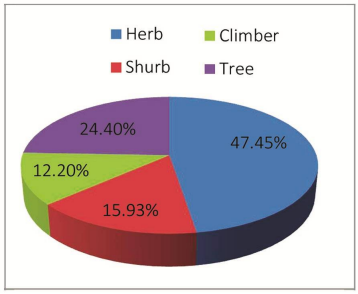

Fig. 1. Recorded Magnoliopsida plants habit diversity in the study area.

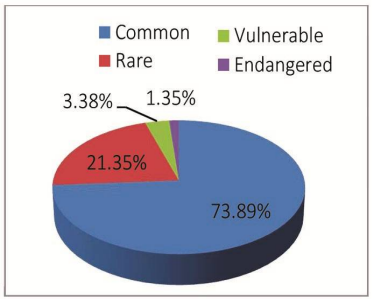

Fig. 2. Recorded Magnoliopsida plants status of occurrence in the study area.

Distribution of angiosperm species in the families shows variation. Asteraceae is the dominant family represented by 25 species, followed by Fabaceae (19 species), Euphorbiaceae (18 species), Cucurbitaceae (17 species), Acanthaceae (11 species), Solanaceae (11 species), Amaranthaceae (10 species) and Apocynaceae (10 species) (Table 1; Fig. 3). 44 families are represented by a single species each, while 37 families are represented by 2-8 species each. Status of occurrence has been recorded for proper conservation management and sustainable utilization of the taxa, which show 218 (73.89%) to be common, 63 (21.35%) as rare, 10 (3.38%) as vulnerable and 4 (1.35%) as endangered in the study area (Fig. 2).

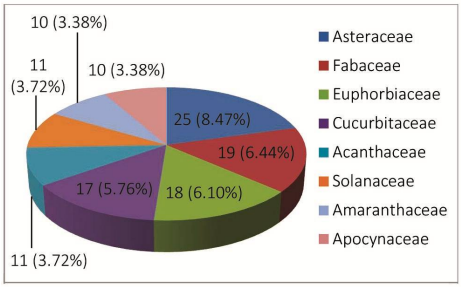

Fig. 3. Dominant plant families in the study area.

Based on the study, a preliminary list of angiosperm diversity at Gobindaganj upazila of Gaibandha district, Bangladesh is recorded. A total of 295 species belonging to 246 Genera under 89 families were found (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 (Islam *et.al*, 2009). A total of 374 species belonging to 264 genera under 84 families were recorded in Lawachara National Park (Uddin and Hassan, 2010). A total of 153 species belonging to 120 genera under 52 families were recorded in Runctia sal Forest (Tutul *et. al*, 2010). A total of 245 species belonging to 183 genera and 72 families were documented in Hobiganj district (Anefin *et al.*, 2011). A total of 425 species belonging to 321

Table 1. Angiosperm Taxa in Gobindagaj Upazila of Gaibandha District, Bangladesh

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
MAGNOLIOPSIDA					
Michelia champaca L., PS 19	Champa	Magnoliaceae	Tree	R	Mar-Apr
Annona reticulata L., PS 29	Nona, Ata	Annonaceae	Tree	C	Oct-Jan
A. squamosa L., PS 37	Sarifa	Annonaceae	Tree	C	Mar-Jul
Polyalthia longifolia (Sonn.) Thw., PS 21	Debdaru	Annonaceae	Tree	C	Mar-Oct
Cinnamomum tamala Nees & Eberm, PS 49	Tejpata	Lauraceae	Tree	R	Feb-Oct
C. verum J. S. Presl, PS 131	Daruchini	Lauraceae	Tree	R	Jan-Mar
Litsea glutinosa (Lour.) Rob., PS 200	Menda	Lauraceae	Tree	V	Apr-Jan
Peperomia pellucida (L.) H.B. & K., PS 44	Luchi Pata	Piperaceae	Herb	C	Jul-Sep
Nymphaea nouchali Burm f., PS 132	Nilsapla	Nymphaeaceae	Herb	C	Jun-Oct
Stephania japonica (Thunb.) Miers., PS 201	Akanadi	Menispermaceae	Climber	R	Jan-Dec
Tinospora cordifolia (Willd.) Hook.f. & Thoms., PS 45	Gulancha	Menispermaceae	Climber	R	Jan-Oct
Argemone mexicana L., PS 133	Sheyalkata	Papaveraceae	Herb	C	Feb-Jun
Trema orientalis (L.) Blume, PS 202	Jibon	Ulmaceae	Tree	C	Jan-Jun
Artocarpus heterophyllus Lamk., PS 266	Kathal	Moraceae	Tree	C	Feb-Jul
A. lacucha Buch-Ham, PS 309	Dewa	Moraceae	Tree	V	Apr-Jun
Ficus benghalensis L., PS 332	Bot	Moraceae	Tree	C	May-Aug
F. hispida L.f., PS 346	Khoksa	Moraceae	Tree	C	Apr-Sep
F. racemosa L., PS 59	Jagdumur	Moraceae	Tree	C	Sep-Nov
F. religiosa L., PS 134	Pakur	Moraceae	Tree	C	Mar-Oct
Sterblus asper Lour., PS 203	Sheora	Moraceae	Tree	R	Feb-Jun
Cannabis sativa L., PS 267	Ganja	Cannabaceae	Herb	R	Jan-Dec
Pouzolzia zeylanica (L.) Benn., PS 310	Kullaruki	Urticaceae	Herb	C	Jan-Dec
Bougainvillea spectabilis Willd., PS 333	Baganbilash	Nyctaginaceae	Climber	R	Nov-Feb
Mirabilis jalapa L., PS 58	Sondha maloti	Nyctaginaceae	Herb	C	Jan-Dec
Chenopodium album L., PS 135	Bothua	Chenopodiaceae	Herb	C	Dec-Mar
C. ambrosioides L., PS 204	Banbotua	Chenopodiaceae	Herb	C	Jan-Dec
Spinacia oleracea L., PS 268	Palongshak	Chenopodiaceae	Herb	C	Feb-Mar
Achyranthes aspera L., PS 311	Aparg	Amaranthaceae	Herb	C	Jan-Dec
Aerva lanata (L.) Juss. ex Schult, PS 334	Chaya	Amaranthaceae	Herb	C	Apr-Jul
Alternanthera sessilis R.Br., PS 399	Chanshi	Amaranthaceae	Herb	C	Jan-Dec
A. philoxeroides (Mart.) Griseb., PS 61	Malancha	Amaranthaceae	Herb	C	Mar-Jun

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Amaranthus dubius Mart., PS 136	Daata	Amaranthaceae	Herb	C	Feb-Oct
A. spinosus L., PS 205	Katanotey	Amaranthaceae	Herb	C	Jan-Dec
A. viridis L., PS 269	Notyshak	Amaranthaceae	Herb	C	Jan-Dec
A. tricolor L., PS 312	Lalshak	Amaranthaceae	Herb	C	Jan-Dec
Celosia cristata L., PS 335	Morogful	Amaranthaceae	Herb	C	Jan-Dec
Dirgeria arvensis Forsk, PS 347	Gungatika	Amaranthaceae	Herb	V	Feb-Jun
Portulaca oleracea L., PS 348	Baranunia	Portulacaceae	Herb	C	May-Jul
P. quadrifida L., PS 67	Chotonumia	Portulacaceae	Herb	C	May-Dec
Basella rubra L., PS 137	Pushak	Basellaceae	Climber	C	Nov-Feb
Mollugo pentaphylla L., PS 206	Khetpapra	Molluginaceae	Herb	C	Jun-Jan
Polycarpon prostratum (Forsk) Asch. & Sch., PS 270	Ghima	Caryophyllaceae	Herb	C	Dec-Feb
Persicaria hydropiper (L.) Spach., PS 313	Biskatali	Polygonaceae	Herb	C	Aug-Apr
Dillenia indica L., PS 63	Chalta	Dilleniaceae	Tree	R	May-Oct
Elaeocarpus tectorius (Lour.) Poir., PS 138	Jolpai	Elaeocarpaceae	Tree	R	May-Oct
Corchorus capsularis L., PS 271	Deshipat	Tiliaceae	Shrub	C	Aug-Feb
Grewia tiliifolia Vahl., PS 51	Pholsa	Tiliaceae	Tree	R	Sep-May
Abroma augusta (L.) L.f., PS 139	Ulatkambal	Sterculiaceae	Shrub	V	Jun-Dec
Bombax ceiba L., PS 207	Shimul	Bombacaceae	Tree	C	Feb-Apr
Abelmoschus esculentus (L.) Moench, PS 272	Bhindi	Malvaceae	Herb	C	Jan-Dec
Abutilon indicum (L.) Sweet., PS 314	Petari	Malvaceae	Herb	C	Jul-Apr
Gossypium hirsutum L., PS 336	Karpas Tula	Malvaceae	Shrub	C	Oct-Jan
Hibiscus rosa-sinensis L., PS 349	Joba	Malvaceae	Shrub	C	Jan-Dec
Sida cordifolia L., PS 69	Berela	Malvaceae	Herb	C	Sep-Dec
Barringtonia acutangula (L.) Gaerth, PS 140	Hijal	Lecythidaceae	Tree	E	May-Sep
Carica papaya L., PS 208	Pape	Caricaceae	Tree	C	Jan-Dec
Benincasa hispida (Thurb.) Cogn., PS 273	Chalkumra	Cucurbitaceae	Climber	C	May-Nov
Citrullus lanatus (Thunb.) Mat. & Nak., PS 70	Tormuj	Cucurbitaceae	Climber	C	Mar-Sep
Coccinia grandis (L.) Voigt., PS 141	Telakucha	Cucurbitaceae	Climber	C	Mar-Dec
Cucumis melo L., PS 209	Bangi	Cucurbitaceae	Climber	C	Mar-Jul
C. sativus L., PS 274	Sosha	Cucurbitaceae	Climber	C	Apr-Sep
Cucurbita maxima Duch, PS 315	Mistikumra	Cucurbitaceae	Climber	C	Mar-Aug
Gymnopetalum cochinchinense (Lour.) Kurz., PS 337	Bati Jhinga	Cucurbitaceae	Climber	R	Jul-Dec
Lagenaria siceraria (Monila) Standl., PS 71	Panilau	Cucurbitaceae	Climber	C	Feb-May
Luffa acutangula (L.) Roxb., PS 142	Jhinga	Cucurbitaceae	Climber	C	Apr-Oct

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Luffa cylindrica (L.) Roem, PS 210	Dhundul	Cucurbitaceae	Climber	C	Jun-Dec
Momordica charantia L., PS 275	Korolla	Cucurbitaceae	Climber	C	May-Oct
M. cochinchinensis (Lour.) Spreng., PS 72	Kakrol	Cucurbitaceae	Climber	C	Jul-Nov
Mukia maderaspatana (L.) M. Roem., PS 143	Agmuki	Cucurbitaceae	Climber	R	Jun-Dec
Trichosanthes anguina L., PS 211	Chichinga	Cucurbitaceae	Climber	C	Apr-Jun
T. cucumerina L., PS 276	Banchichinga	Cucurbitaceae	Climber	C	Apr-Jun
T. dioica Roxb., PS 73	Potol	Cucurbitaceae	Climber	C	Apr-Sep
T. tricuspidata Lour., PS 144	Makal	Cucurbitaceae	Climber	R	Jul-Dec
Cleome viscosa L., PS 212	Hurhuria	Capparaceae	Herb	R	Jan-Dec
Brassica napus L., PS 277	Sarisha	Brassicaceae	Herb	C	Mar- Jul
B. oleracea L.var. *capitata* L., PS 316	Badhakopi	Brassicaceae	Herb	C	Nov-Apr
B. oleracea L.var. *botrytis* L., PS 338	Phulkopi	Brassicaceae	Herb	C	Nov-Apr
Raphanus sativus L., PS 74	Mula	Brassicaceae	Herb	C	Jan-May
Moringa oleifera Lamk., PS 145	Sajna	Moringaceae	Tree	C	Jan-Dec
Manilkara zapota (L.) P. van Royen, PS 213	Sofeda	Sapotaceae	Tree	C	May-Jun
Mimusops elengi L., PS 75	Bokul	Sapotaceae	Tree	C	Mar-Jun
Diospyros blancoi A. DC., PS 214	Bilatigab	Ebenaceae	Tree	R	May-Jul
D. malabarica (Desr.) Kostel., PS 278	Deshi Gab	Ebenaceae	Tree	C	May-Jul
D. montana Roxb., PS 317	Tamal	Ebenaceae	Tree	V	Mar-May
Bryophyllum pinnatum (Lamk.) Oken, PS 76	Pathorkuchi	Crassulaceae	Herb	C	Nov-Jan
Kalanchoe laciniata (L.) Pers., PS 146	Himsagor	Crassulaceae	Herb	R	Jan-Mar
Rosa centifolia L., PS 215	Golap	Rosaceae	Shrub	C	Jan-Dec
Acacia auriculiformis A. Cunn. *ex.* Benth & Hook, PS 279	Akasmoni	Mimosaceae	Tree	C	Jun-Feb
A. catcechu (L.f) Wild., PS 318	Khair	Mimosaceae	Tree	R	Mar-Dec
A. nilotica (L.) Del., PS 339	Babla	Mimosaceae	Tree	C	Apr-Aug
Albizia procera (Roxb.) Benth, PS 350	Silkoroi	Mimosaceae	Tree	C	Jan-Dec
Mimosa pudica L., PS 77	Lojjaboti	Mimosaceae	Herb	C	Sep-Dec
Bauhinia acuminata L., PS 147	Sada Kanchan	Caesalpiniaceae	Tree	R	Jan – Dec
Cassia fistula L., PS 216	Badorlathi	Caesalpiniaceae	Tree	C	Mar-Apr
Delonix regia (Boyer) Raf, PS 280	Krishnochura	Caesalpiniaceae	Tree	C	Apr-Sep
Senna alata (L.) Roxb., PS 78	Dadmardan	Caesalpiniaceae	Shrub	R	Sep-Jan
S. sophera (L.) Roxb., PS 148	Kalkashunda	Caesalpiniaceae	Shrub	C	Dec-Mar
Tamarindus indica L., PS 217	Tentul	Caesalpiniaceae	Tree	C	Apr-Dec
Abrus precatorius L., PS 79	Kuch	Fabaceae	Climber	R	Jul-Sep

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Arachis hypogea L., PS 149	Chinabadam	Fabaceae	Herb	C	Mar-Dec
Cajanus cajan (L.) Millsp, PS 218	Arhar	Fabaceae	Shrub	C	Dec-Apr
Clitoria ternatea L., PS 281	Aparajita	Fabaceae	Climber	C	Jan-Dec
Crotalaria pallida Ait., PS 80	Jhun-Jhuni	Fabaceae	Herb	C	May-Dec
Dalbergia sissoo Roxb., PS 150	Sissoo Gachh	Fabaceae	Tree	C	Mar-Jun
Desmodium gangeticum (L.) DC., PS 219	Salpani	Fabaceae	Herb	C	Apr-Nov
D. triflorum (L.) DC., PS 282	Kudalia	Fabaceae	Herb	C	Jan-Dec
Erythrina variegata L., PS 81	Madar	Fabaceae	Tree	C	Feb-May
Lablab purpureus (L.) Sweet, PS 151	Shim	Fabaceae	Climber	C	Nov-Mar
Lathyrus sativus L., PS 220	Khesari	Fabaceae	Herb	C	Feb-Sep
Lens culinaris Medic., PS 82	Masur	Fabaceae	Herb	C	Dec-Mar
Melilotus alba Desr., PS 152	Sada Methi	Fabaceae	Herb	R	Mar-Oct
Pongamia pinnata (L.) Pierre, PS 221	Karanja	Fabaceae	Tree	R	Mar-Jul
Sesbania bispinosa (Jacq.) Wight., PS 283	Dhaincha	Fabaceae	Shrub	C	May-Oct
Uraria picta (Jacq.) Desv., PS 83	Shankar Jata	Fabaceae	Herb	R	Jun-Dec
Visia sativa L., PS 153	Ankari	Fabaceae	Herb	C	Jul-Nov
Vigna mungo (L.) Hepper, PS 222	Mashkalai	Fabaceae	Herb	C	Nov-Jan
V. unguiculata (L.) Walp., PS 284	Borboti	Fabaceae	Climber	C	Jan-Dec
Lagerstroemia speciosa (L.) Pers., PS 319	Jarul	Lythraceae	Tree	C	Apr-Aug
Lawsoria inermis L., PS 84	Mehedi	Lythraceae	Shrub	C	Jun-Dec
Trapa bispinosa Roxb., PS 154	Paniphal	Trapaceae	Herb	C	Jun-Sep
Eucalyptus citriodora Hook, PS 223	Eucalyptus	Myrtaceae	Tree	C	Jan-Dec
Psidium guajava L., PS 85	Peyara	Myrtaceae	Tree	C	Jan-Dec
Syzygium cumini (L.) Skeels., PS 155	Jam	Myrtaceae	Tree	C	Mar-Jun
S. jambos (L.) Alston, PS 224	Golapjam	Myrtaceae	Tree	R	Mar-Jun
S. samarangense (Blume) Merr & Perry, PS 86	Jamrul	Myrtaceae	Tree	C	Feb-Mar
Punica granatum L., PS 156	Dalim	Punicaceae	Shrub	C	Jan-Dec
Ludwigia adscendens (L.) Hara, PS 225	Kesordam	Onagraceae	Herb	C	Mar-Dec
Quisqualis indica L, PS 320	Madhabi Lata	Combretaceae	Shrub	C	Jan-May
Terminalia arjuna (Roxb. ex. DC) Wight & Arn., PS 87	Arjun	Combretaceae	Tree	C	Apr-Jul
T. chebula Retz., PS 157	Haritaki	Combretaceae	Tree	R	May-Jun
Santalum album L., PS 226	Shwet Chandan	Santalaceae	Tree	E	Feb-Jul
Dendrophthe falcata (L.f.) Etting., PS 285	Bandha	Loranthaceae	Parasitic Shrub	R	Jan-Dec
Acalypha indica L., PS 88	Muktajhuri	Euphorbiaceae	Herb	C	Dec-Apr

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Baccaurea ramiflora Lour., PS 158	Latkan	Euphorbiaceae	Tree	R	Jun-Sep
Codiaeum variegatum (L.) A. Juss., PS 227	Patabahar	Euphorbiaceae	Shrub	C	Jan-Dec
Croton bonplandianus Baill , PS 286	Banmorich	Euphorbiaceae	Herb	C	Jan-Dec
Euphorbia hirta L. , PS 321	Dudhiya	Euphorbiaceae	Herb	C	Jan-Dec
E. nerifolia L., PS 340	Mansasij	Euphorbiaceae	Shrub	R	Jun-Nov
E. pulcherrima Willd. ex Klotz., PS 89	Lal Pata	Euphorbiaceae	Shrub	R	Dec-Mar
E. thymifolia L., PS 159	Swetkan	Euphorbiaceae	Herb	R	Jan-Dec
Jatropha curcas L., PS 228	Jamalgota	Euphorbiaceae	Shrub	R	Sep-Dec
J. gossypifolia L., PS 287	Lalbherenda	Euphorbiaceae	Shrub	C	Apr-Aug
Manihot esculenta Crantz., PS 90	Kasava	Euphorbiaceae	Shrub	C	Sep-Jan
Phyllanthus emblica L., PS 160	Amloki	Euphorbiaceae	Tree	R	Mar-Sep
P. niruri L., PS 229	Bhuiamla	Euphorbiaceae	Herb	C	Aug-Oct
P. reticulatus Poir, PS 288	Chitki	Euphorbiaceae	Shrub	C	Mar-Oct
P. urinaria L., PS 91	Hazarmari	Euphorbiaceae	Herb	C	Apr-Oct
Ricinus communis L., PS 161	Bherenda	Euphorbiaceae	Shrub	C	Jan-Dec
Tragia involucrata L., PS 230	Bichuti	Euphorbiaceae	Herb	E	Oct-Jan
Trewia nodiflora L., PS 289	Batul, Latim	Euphorbiaceae	Tree	R	Feb-Aug
Zizyphus mauritiana Lamk., PS 322	Boroi	Rhamnaceae	Tree	C	Sep-Jan
Vitis trifolia (L.) Domin., PS 341	Amallata	Vitaceae	Climber	R	Jan-Dec
Litchi chinensis Sonn., PS 92	Lichu	Sapindaceae	Tree	C	Apr-Jun
Magnifera indica L., PS 162	Aam	Anacardiaceae	Tree	C	Jan-Apr
Spondias pinnata (L.f) kurz, PS 231	Aamra	Anacardiaceae	Tree	C	Feb-Jun
Azadirachta indica A. Juss., PS 290	Neem	Meliaceae	Tree	C	Mar-Jul
Swietenia mahagoni Jacq., PS 93	Mahagoni	Meliaceae	Tree	C	Apr-Nov
Aegle marmelos (L.) Corr., PS 163	Bel	Rutaceae	Tree	C	Apr-Dec
Citrus aurantifolia (Christm. & Panzer) Swingle., PS 232	Labu	Rutaceae	Shrub	C	Mar-Sep
Citrus maxima (Burm.) Merr., PS 291	Jambura	Rutaceae	Tree	C	Feb-Nov
Glycosmis pentaphylla (Retz.) A.DC., PS 323	Datmajani	Rutaceae	Shrub	R	Jan-Dec
Limonia acidissima L., PS 94	Kothbel	Rutaceae	Tree	C	Feb-Dec
Murraya paniculata (L.) Jack , PS 164	Kamini	Rutaceae	Shrub	C	Mar-Jan
Averrhoa carambola L., PS 233	Kamranga	Oxalidaceae	Tree	C	Sep-Mar
Oxalis corniculata L., PS 292	Amrul	Oxalidaceae	Herb	C	Sep-May
Impatiens balsamina Thusmb, PS 324	Dupati	Balsaminaceae	Herb	C	Mar-Oct
Centella asiatica (L.) Urban, PS 342	Thankuni	Apiaceae	Herb	C	Jan-Dec
Coriandrum sativum L., PS 95	Dhoney	Apiaceae	Herb	C	Dec-Feb
Daucus carota L., PS 165	Gajor	Apiaceae	Herb	C	May-Aug

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Exacum pedunculatum L., PS 234	Chirattam	Gentianaceae	Herb	R	Feb-Apr
Allamanda cathartica L., PS 293	Alkananda	Apocynaceae	Shrub	C	Jan-Dec
Alstonia scholaris (L.) R. Br., PS 96	Chatim	Apocynaceae	Tree	R	Nov-May
Carissa carandas L., PS 166	Karamcha	Apocynaceae	Herb	C	Jan-Dec
Catharanthus roseus (L.) G. Don., PS 235	Nayantara	Apocynaceae	Herb	C	Jan-Dec
Holarrhena antidysenterica (L.) Wall. *ex* Decne, PS 97	Kurchi	Apocynaceae	Tree	V	Apr-Jan
Nerium oleander L., PS 167	Korobi	Apocynaceae	Shrub	C	Jan-May
Plumeria alba L., PS 236	Katgolap	Apocynaceae	Tree	R	May-Nov
Rauvolfia serpentina (L.) Benth ex Kurz., PS 294	Sarpagandha	Apocynaceae	Herb	R	Jan-Dec
Tabernaemontana divaricata (L.) R.Br.*ex.*Roem & Schult, PS 325	Tagor	Apocynaceae	Shrub	R	May-Jan
Thevetia peruviana Pers., PS 98	Haldekarabi	Apocynaceae	Tree	C	Jan-Dec
Calotropis gigantea (L.) R.Br., PS 168	Akondo	Asclepiadaceae	Shrub	C	Apr-May
C. procera (Ait.) R. Br., PS 237	Akondo	Asclepiadaceae	Shrub	C	Apr-May
Capsicum frutescens L., PS 99	Morich	Solanaceae	Herb	C	Jan-Dec
Cestrum nocturnum L., PS 169	Hasnahena	Solanaceae	Shrub	C	Jan-Dec
Datura metel L., PS 238	Dhatura	Solanaceae	Shrub	C	Jan-Dec
Lycopersicon esculentum Mill., PS 295	Tomato	Solanaceae	Herb	C	Sep-Apr
Nicotiana plumbaginifolia Viv., PS 326	Bontamak	Solanaceae	Herb	C	Jan-Dec
Physalis minima L., PS 343	Kopalftka	Solanaceae	Herb	C	Jan-Dec
Solanum melongena L., PS 100	Begun	Solanaceae	Herb	C	Oct-Feb
S. nigrum L., PS 170	Titbegun	Solanaceae	Herb	C	Jan-Dec
S. tuberosum L., PS 239	Golalu	Solanaceae	Herb	C	Oct-Feb
S. torvum Swartz., PS 296	Gota Begun	Solanaceae	Shrub	C	Dec-Feb
S. virginianum L., PS 101	Kantakari	Solanaceae	Herb	C	Oct-Feb
Evolvulus nummularius (L.) L., PS 171	Bhuiokra	Convolvulaceae	Herb	C	Jan-Dec
Ipomoea aquatica Forssk, PS 240	Kalmishak	Convolvulaceae	Climber	C	Jan-Oct
I. batatas (L.) Lamk., PS 297	Mistialu	Convolvulaceae	Climber	C	Jan-Dec
I. fistulosa Mart. ex. Choisy in DC., PS 102	Dholkalmi	Convolvulaceae	Shrub	C	Jan-Dec
Cuscuta reflexa Roxb., PS 172	Swarnolata	Cuscutaceae	Climber	C	Aug-Dec
Nymphoides indicum (L.) O, Kuntze, PS 241	Panchuli	Menyanthaceae	Herb	C	Oct-Feb
Cordia dichotoma Forst., PS 103	Boula	Boraginaceae	Tree	V	Feb-Aug
Heliotropium indicum L., PS 173	Hatishur	Boraginaceae	Herb	C	Jan-Dec
Clerodendrum viscosum Vent., PS 242	Bhat	Verbenaceae	Shrub	C	Jan-Jul
C. inerme (L.) Grentn, PS 298	Bamunhati	Verbenaceae	Shrub	C	Jul-Nov

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Duranta repens L., PS 104	Katamehedi	Verbenaceae	Shrub	C	Jan-Dec
Lantana camara L., PS 174	Chotra	Verbenaceae	Shrub	C	Jan-Dec
Lippia alba (Mill.) Briton *et* Wilson., PS 243	Boraokra	Verbenaceae	Shrub	C	Jan-Dec
Phyla nodiflora (L.) Greene, PS 299	Khudiokra	Verbenaceae	Herb	C	Jan-Dec
Tectona grandis L.f., PS 105	Shegun	Verbenaceae	Tree	C	Jul-Nov
Vitex negundo L., PS 175	Nisinda	Verbenaceae	Shrub	R	Apr-Feb
Anisomeles indica (L.) Kuntz., PS 244	Gobura	Lamiaceae	Herb	R	Oct-Jul
Hyptis suaveolens (L.) Poit., PS 327	Tokma	Lamiaceae	Herb	V	Jan-Dec
Leonurus sibiricus L., PS 106	Roktodron	Lamiaceae	Herb	C	Jan-Dec
Leucas aspera (Willd) Link, PS 176	Shetodron	Lamiaceae	Herb	C	Jan-Dec
Mentha viridis L., PS 245	Pudina	Lamiaceae	Herb	C	Jul-Sep
Ocimum tenuiflorum L., PS 300	Tulsi	Lamiaceae	Herb	R	Jan-Dec
O. americanum L., PS 107	Bon Tulsi	Lamiaceae	Herb	C	Jun-Feb
Jasminum sambac (L.) Ait., PS 177	Beli	Oleaceae	Shrub	C	Mar-Jul
Nyctanthes arbor-tristis L., PS 246	Sheuli	Oleaceae	Shrub	C	Aug-Sep
Bacopa monnieri (L.) Pannel, PS 301	Brammishak	Scrophulariaceae	Herb	V	May-Dec
Scoparia dulcis L., PS 328	Bondone	Scrophulariaceae	Herb	C	Jan-Dec
Andrographis paniculata (Burm.f.) Wall *ex* Ness., PS 108	Kalamegh	Acanthaceae	Herb	C	Jan-Mar
Barleria prionitis L., PS 178	Kanta-janti	Acanthaceae	Herb	C	Nov-Feb
Eranthemum pulchellum Andre, PS 247	Shukh Murali	Acanthaceae	Shrub	R	Feb-Apr
Hemigraphis hirta (Vahl) T. Anders., PS 302	Buriana	Acanthaceae	Herb	C	Jan-Jul
Hygrophila schulli (Buch.-Ham.) M.R. & S.N.Almeida, PS 109	Kulekharha	Acanthaceae	Herb	R	Oct-Jan
Justicia adhatoda L., PS 179	Basok	Acanthaceae	Shrub	R	Jan-Apr
J. gendarussa Burm. f., PS 248	Jagath madan	Acanthaceae	Herb	C	Apr-Aug
Nelsonia canescens (Lamk.) Spreng., PS 110	Paramul	Acanthaceae	Herb	C	Oct-Feb
Ruellia tuberosa L., PS 180	Chatpoty	Acanthaceae	Herb	C	Jan-Dec
Rungia pectinata (L.) Ness in DC., PS 249	Pindi	Acanthaceae	Herb	C	Nov-May
Thunbergia grandiflora (Roxb. *ex* Rottler) Roxb., PS 303	Nillata	Acanthaceae	Climber	R	Jan-Dec
Sesamum indicum L., PS 329	Til	Pedaliaceae	Herb	C	Feb-Oct
Tabebuia aurea F.T, PS 344	Tobebia	Bignoniaceae	Tree	E	Jan-Dec
Gardenia augusta (L.) Merr., PS 345	Gondhoraj	Rubiaceae	Shrub	C	Mar-May
Ixora coccinia L., PS 111	Rongon	Rubiaceae	Shrub	C	Jan-Dec
Neolamarckia cadamba (Roxb.) Bosser, PS 181	Kadom	Rubiaceae	Tree	C	May-Jul

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Paederia foetida L., PS 250	Gandhavaduli	Rubiaceae	Climber	V	Jan-Dec
Ageratum conyzoides L., PS 112	Ochunti	Asteraceae	Herb	C	Nov-Jun
Blumea lacera (Burm. f.) DC., PS 182	Borokucksim	Asteraceae	Herb	C	Nov-Jul
Chrysonthemum coronarium L., PS 251	Chandro mollika	Asteraceae	Herb	C	Dec-Feb
Chromolaena odorata (L.) King. & Robinson, PS 330	Germanlata	Asteraceae	Herb	R	Nov-May
Cirsium arvense (L.) Scop., PS 113	Shial Kanta	Asteraceae	Herb	C	Feb-Jun
Cosmos bipinatus Cav., PS 183	Cosmos	Asteraceae	Herb	C	Jan-Dec
Eclipta alba (L.) Hassk, PS 252	Kalokeshi	Asteraceae	Herb	R	Jan-Dec
Enhydra fluctuans Lour., PS 114	Helencha	Asteraceae	Herb	C	Jan-Apr
Gnaphalium luteo-album L., PS 184	Bara Kamra	Asteraceae	Herb	C	Mar-Aug
Grangea maderaspatana (L.) Poir., PS 253	Namuti	Asteraceae	Herb	R	Dec-May
Hellianthus annuus L., PS 115	Surjomukhi	Asteraceae	Herb	C	Jan-Dec
Lactuca sativa L., PS 185	Lettuce	Asteraceae	Herb	C	Jan-Dec
Launaea aspleniifolia DC., PS 254	Tik-chana	Asteraceae	Herb	C	Jan-Aug
Mikania cordata (Burm f.) Robinson, PS 116	Asamlata	Asteraceae	Climber	C	Oct-Feb
Sonchus asper (L.) Hill., PS 186	Sonpalong	Asteraceae	Herb	C	Sep-Jun
Spilanthes acmella (L.)L., PS 255	Marhatitiga	Asteraceae	Herb	R	Jan-Dec
Synedrella nodiflora (L.) Gaertn, PS 304	Relanodi	Asteraceae	Herb	R	Jan-Dec
Tagetes erecta L., PS 117	Genda	Asteraceae	Herb	C	Jan-Dec
T. patula L., PS 187	Gendaphul	Asteraceae	Herb	C	Nov-Mar
Tridax procumbens L., PS 256	Tridhara	Asteraceae	Herb	C	Jan-Dec
Vernonia cinerea (L.) Less., PS 305	Kuksim	Asteraceae	Herb	C	Jan-Dec
Wedelia trilobata (L.) A.S. Hitchc., PS 331	Keshraj	Asteraceae	Herb	C	Jan-Dec
Xanthium indicum Koen *ex* Roxb. , PS 257	Ghagra	Asteraceae	Herb	C	Jan-Dec
Youngia japonica (L.) DC., PS 118	Youngful	Asteraceae	Herb	R	Aug-Jan
Zinnia pauciflora L., PS 188	Zinnia	Asteraceae	Herb	R	Jun-Aug
LILIOPSIDA					
Areca catechu L., PS 119	Shupari	Arecaceae	Tree	C	Jan-Dec
Borassus flabellifer L., PS 189	Taal	Arecaceae	Tree	C	Jan-Oct
Cocos nucifera L., PS 258	Narkel	Arecaceae	Tree	C	Jan-Dec
Phoenix sylvestris Roxb., PS 120	Khejur	Arecaceae	Tree	C	Dec-May
Alocasia macrorrhizos (L.) G. Don., PS 190	Mankochu	Araceae	Herb	C	Jul-Oct
Amorphophallus campanulatus (Roxb) BI. *ex*. Dense, PS 121	Olkochu	Araceae	Herb	C	May-Nov
Colocasia esculenta (L.) Schott., PS 191	Kochu	Araceae	Herb	C	May-Oct

Table 1 Contd.

Scientific name and Voucher number	Bangla name	Family	Habit	Status of occurrence	Flowering time
Epipremnum pinnatum (L.) Engl., PS PS 259	Money plant	Araceae	Climber	R	Apr-May
Typhonium trilobatum (L.) Schott, PS 306	Camgash	Araceae	Herb	C	Apr-Oct
Lemna perpusilla Torrey, PS 122	Khudipana	Lemnaceae	Herb	C	Jan-Dec
Commelina benghalensis L., PS 192	Kanshira	Commelinaceae	Herb	C	Apr-Nov
Cyanotis cristata Schutt., PS 260	Kendara	Commelinaceae	Herb	C	Sep-Feb
Cyperus rotundus L., PS 123	Muthagas	Cyperaceae	Herb	C	Sep-Feb
Kyllinga nemoralis (J.R. Forst. & G. Forst.) Dandy *ex* Hutchins. & Dal., PS 124	Nirbishi	Cyperaceae	Herb	C	Jun-Sep
Bambusa bambos (L.) Voss., PS 193	Bash	Poaceae	Shrub	C	Jan-Dec
Cynodon dactylon (L) Pers., PS 261	Durba	Poaceae	Herb	C	Jan-Dec
Oryza sativa L., PS 125	Dhan	Poaceae	Herb	C	Jul-Sep
Saccharum officinarum L., PS 194	Aakh	Poaceae	Shrub	C	Jan-Dec
Setaria glauca (L.) Beauv , PS 262	Kawn	Poaceae	Herb	C	Jan-Dec
Triticum aestivum L., PS 307	Gom	Poaceae	Herb	C	Jan-Dec
Zea mays L., PS 126	Vutta	Poaceae	Shrub	C	Mar-Apr
Ananas comosus (L.) Merr., PS 195	Anaras	Bromeliaceae	Herb	R	Feb-Jul
Musa paradisiaca L., PS 263	Kola	Musaceae	Herb	C	Jan-Dec
Cucurma longa L., PS 127	Holud	Zingiberaceae	Herb	C	Mar-Oct
Zingiber officinale Rose, PS 196	Ada	Zingiberaceae	Herb	C	Mar-Aug
Cheilocostus speciosus (J.Koenig) C. Specht., PS 264	Keumul	Costaceae	Herb	R	Sep-Dec
Canna indica L. , PS 128	Kolaboti	Cannaceae	Herb	C	Apr-Nov
Allium cepa L., PS 197	Piyaj	Liliaceae	Herb	C	Feb-Jun
A. sativum L., PS 265	Rosun	Liliaceae	Herb	C	Feb-Apr
Asparagus racemosus Willd., PS 308	Satamili	Liliaceae	Climber	R	Nov-Mar
Aloe vera (L.) Burn.f., PS 129	Ghrita kumari	Aloeaceae	Herb	C	Sep-Dec
Smilax macrophylla Roxb., PS 198	Kumarilata	Smilaceae	Climber	R	Nov-Mar
Dioscorea alata L., PS 130	Chupri alu	Dioscoriaceae	Climber	R	Oct-Dec
Vanda tessellata (Roxb.) Hook.f. , PS 199	Rasna	Orchidaceae	Epiphytic Herb	R	Apr-Jun

Jan = January, Feb = February, Mar = March, Apr= April, May = May, Jun = June, Jul = July, Aug = August, Sep = September, Oct = October, Nov = November, Dec = December, C = Common, R = Rare, Vul = Vulnerable, E= Endangered.

genera 108 families were recorded in Rajshahi district (Rahman, 2013). A total of 302 species belonging to 243 genera under 84 families were recorded in Bangladesh Police Academy, Rajshahi (Rahman *et. al*, 2014). But there has been published information on the diversity of angiosperm plant species in Gobindaganj of Gaibandha district, Bangladesh.

The study area has a moderately rich resource of angiosperms, it witness some threats which might drive this resource to an endangered stated. Observations and group discussion with local people during field works resulted in identifying some major threats which include urbanization,

modern agriculture, brick fields, deforestation, and lack of awareness, exotic plantation and river erosion. Therefore, efforts should be undertaken to safeguard the plants through *ex situ* and *in situ* conservation approaches, public awareness, and ensuring protection of habitats.

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