INNSPUB

Journal of Biodiversity and Environmental Sciences | JBES
ISSN: 2220-6663 (Print); 2222-3045 (Online)
Website: https://www.innspub.net
E-mail contact: info@innspub.net
Vol. 29, Issue: 2, p. 45-52, 2026

RESEARCH PAPER OPEN ACCESS

The checklist of vascular plants of Bangladesh (CVPB): A dynamic web-based plant database for botanical exploration

Md. Salah Uddin[*1,2], Shaikh Bokhtear Uddin[3]

[1]*Department of Biology, Kyungpook National University, Daegu, Republic of Korea*
[2]*Botanical Research Centre, Botanika, Tejgaon, Dhaka- 1208, Bangladesh*
[3]*Ethnobotany and Pharmacognosy Lab., Department of Botany, University of Chittagong, Chattogram- 4331, Bangladesh*

Key words: Checklist, Vascular plants, Web-based database, Bangladesh

Received: 21 July, 2026 **Accepted:** 31 July, 2026 **Published:** 07 August, 2026

DOI: https://dx.doi.org/10.12692/jbes/29.2.45-52

ABSTRACT

The present study aims to develop the Checklist of Vascular Plants of Bangladesh (CVPB), an accessible web-based plant database (https://eflorabd.natureinfo.com.bd/). The dataset was compiled through multiple repositories were systematically consulted, including published literature, relevant online databases, and herbaria collections accessible up to 2024. Users have the option to view, search and browse the complete database. The CVPB, an up-to-date online plant database includes 4,754 taxa (4,629 species, 39 subspecies, 86 varieties), belonging to 234 families and 1,709 genera. There are 4,525 angiosperms, 21 gymnosperms and 208 pteridophytes. The endemism level for the vascular flora of Bangladesh was assessed at 1.03%. The majority of the species on the checklist (41.52%) are herbaceous, with trees, shrubs, and climbers accounting for 21.90%, 16.28%, and 12.73% of the total listed taxa, respectively. The four families with the highest representation are Fabaceae, Poaceae, Orchidaceae and Rubiaceae, with 405, 300, 232 and 223 taxa, respectively. With 72 taxa, *Cyperus* is the largest genus in Bangladesh. The checklist provides the information respectively family name, scientific name, vernacular name, growth habit and voucher specimen number with reference list.

***Corresponding Author:** Md. Salah Uddin ✉ botanikamsu@gmail.com

INTRODUCTION

Bangladesh lies between latitudes 20°34'N and 26°33'N and longitudes 88°01'E and 94°41'E. It covers about 1,47,570 square kilometers. A flat plain with multiple river systems crisscrossing it makes up the majority of the region. Bangladesh's distinct geography and seasonal variations contribute to its high biodiversity. While the number of plant species in the entire country is predicted to be 5,327 (Pasha and Uddin, 2013) a recent compilation of the country's flora has reported 3,956 vascular taxa (Uddin *et al.,* 2023). Approximately thousands of taxa are absent from the most recent article, compared the anticipated number of taxa. The precise number of vascular taxa found in this country is yet unknown, though the Indian subcontinent has been the subject of botanical exploration for more than 200 years. An updated checklist is critically needed to ascertain the exact number of vascular plants in Bangladesh, through compiled the scattered data found in different publications, and herbaria. The precise number of vascular taxa can be determined using a thorough checklist. A complete list of all scientifically identified plant species, the checklist of vascular plants of Bangladesh, CVPB was assembled using published literature, reputable scientific databases, herbaria, and observations (Rahman and Uddin, 2018; Islam and Uddin, 2021; Uddin, 2018). Such lists should be easily available, clearly supported by evidence, transparent, subject to expert evaluation, and updated frequently to take into account new data and growing body of scientific opinion in order to maximize their usefulness. These requirements are mostly met by CVPB, which is freely accessible online and updated on a regular basis.

A web-based database for vascular plants is an online resource created to offer extensive data about vascular plants, such as flowering plants, ferns, and conifers. It frequently provides easy-to-use interfaces with sophisticated search and filtering capabilities that let users look for plants according to certain parameters, such genus, family, or species. The accessibility of web-based datasets on vascular plants is one of their biggest advantages. Open access online databases are accessible to everybody with an internet connection, in contrast to traditional herbarium collections or print publications, which could be restricted to particular places and require physical access. This makes scientific knowledge more accessible to all and makes it easier for researchers to work together globally. For example, data on plant species from another region can be readily accessed by a botanist in one country, facilitating cross-border study and conservation initiatives. The capacity to expand and update the data on a constant basis is another essential aspect. It is updated often to reflect the most recent scientific discoveries, guaranteeing that users have access to the most precise and up-to-date information (Uddin and Lee, 2020). By providing accessible, comprehensive, and continuously updated information on vascular plants, the CVPB support scientific research, education, and conservation initiatives.

MATERIALS AND METHODS

Over the course of the digital revolution, CVPB was compiled, edited, and reviewed. As a result, over time, there were significant changes to the formats in which data were distributed, stored, and accessed.

Data extraction from literature

In order to obtain data, more than three hundred different types of literature that had been published in national and international journals up to 2024 were examined in order to find any claims made about the Bangladeshi plants all across the nation. The CVPB, interactive online database aims to gather all information about Bangladesh's vascular plants. In order to achieve this, we painstakingly collated all available data on vascular plants in Bangladesh from books and publications that had been published in various journals included Haque *et al.* (2018), Hossain *et al.* (2022), Islam and Uddin (2021), Khan *et al.* (2021), Rahman and Uddin (2018), Uddin *et al.* (2015), Uddin *et al.* (2023), Uddin *et al.* (2024), Uddin (2018), Shetu *et al.* (2022), Uddin and Hassan (2018a, 2018b, 2018c).

Database preparation

The collated and curated data was integrated using MySQL (https://www.mysql.com/), a relational database management system that acts as a resource back-end, to create the CVPB database. The database's front-end web interface was made using WordPress (https://wordpress.org), a PHP-based content management system running on an Apache server with a MySQL database. Plant taxon name can be used to quickly browse the index or query this database by users (Fig. 1).

Fig. 1. Web interface of the checklist of vascular plants of Bangladesh (CVPB)

Query strategies

Simple query and browsing are the two access and search strategies provided by CVPB.

Search

Using the basic search option, you may perform a google-style search over the entire database for one or more terms. When it comes to hits, the outcomes are shown in a summary.

Browse by index [A-Z]

The simplest approach to obtain a first understanding of the database's content is through the alphabetical browsing mechanism offered by the CVPB query functionality. The user can view the family list as a summary by selecting the required letter from the alphabetical strip on the right side of the website. To view the entire family checklist at this phase, click on the desired family name.

This database can be accessed without cost. Users and researchers working in science can profit from the way the database's material is organized.

RESULTS AND DISCUSSION

The CVPB, presented in web-based database https://eflorabd.natureinfo.com.bd/, accounts for 4,754 taxa (4,629 species, 39 subspecies, 86 varieties), belonging to 234 families and 1,709 genera. There are 4,525 angiosperms, 21 gymnosperms and 208 pteridophytes. These results, which greatly increase the number of 3,649 vascular plant taxa listed in the previous Flora compilation of Asiatic Society of Bangladesh (Ahmed *et al.,* 2008a, 2008b, 2008c, 2009a, 2009b, 2009c; Siddiqui *et al.* 2007a, 2007b), may be linked to the nation's recent surge in botanical exploration as well as the accessibility of publicly available online botanical information. Angiosperms constitute the largest botanical group recorded in this study, representing 95.18% (4,525) of the total documented taxa across 203 families and 1,634 genera (Table 1). In contrast, pteridophytes comprise 4.38% (n=208) of the taxa, distributed among 23 families and 63 genera. Gymnosperms represent the smallest cohort, accounting for only 0.44% (21) of the overall taxa, spanning 8 families and 12 genera (Fig. 2).

In terms of growth form distribution, herbaceous plants constitute the majority of the checklist at 41.52%, followed by trees (21.90%), shrubs (16.28%), and climbers (12.73%). The remaining life forms collectively account for 7.57% of the recorded taxa, which include epiphytes (3.95%), palms (1.32%), geophytes (1.10%), lithophytes (0.57%), bamboos (0.49%), and creepers (0.14%) (Fig. 3).

The checklist is dominated by four high-diversity families containing 200 or more taxa: Fabaceae (405 taxa), Poaceae (300 taxa), Orchidaceae (232 taxa), and Rubiaceae (223 taxa). Other well-represented families with 100 or more taxa include Cyperaceae (169 taxa), Asteraceae (168 taxa), Lamiaceae (155 taxa), Acanthaceae (139 taxa), Apocynaceae (131 taxa), Malvaceae (127 taxa), Euphorbiaceae (106 taxa), and Araceae (104 taxa) (Fig. 4).

Table 1. Synopsis of the enumerated vascular flora of Bangladesh

Plant groups	Family	Genus	Species	Genus: Family	Species: Family	Species: Genus	Percentage of species to the total flora
Magnoliophyta	203	1634	4525	8.05	22.29	2.77	95.18
Magnoliopsida	162	1251	3340	7.72	20.62	2.67	70.26
Liliopsida	41	383	1185	9.34	28.90	3.09	24.92
Gymnosperms	8	12	21	1.50	2.63	1.75	0.44
Pteridophyta	23	63	208	2.73	9.04	3.30	4.38
Total	234	1709	4754	7.30	20.31	2.78	100.00

Table 2. Comparative analysis of the 20 dominant families of cvpb against the encyclopedia of flora and fauna of Bangladesh (EFFB) by the asiatic society and the vascular flora of chittagong and the chittagong hill tracts (VFCCHT) by the bangladesh national herbarium (BNH)

Sl	Family Name	CVPB: No. of Genus	CVPB: No. of Species	EFFB: No. of Genus	EFFB: No. of Species	VFCCHT: No. of Genus	VFCCHT: No. of Species
1	Fabaceae	131	405	69	254	62	200
2	Poaceae	118	300	113	285	78	170
3	Orchidaceae	71	232	70	179	56	111
4	Rubiaceae	69	223	56	170	56	167
5	Cyperaceae	20	169	22	146	19	102
6	Asteraceae	102	168	71	130	49	87
7	Lamiaceae	44	155	34	86	19	47
8	Acanthaceae	40	139	39	107	29	93
9	Apocyanaceae	61	131	27	46	23	34
10	Malvaceae	43	127	14	44	9	33
11	Euphorbiaceae	39	106	47	140	42	123
12	Araceae	34	104	30	89	23	52
13	Zingiberaceae	18	79	14	60	11	45
14	Phyllanthaceae	13	72	–	–	–	–
15	Convoluvlaceae	19	71	15	55	13	41
16	Moraceae	8	68	7	58	7	53
17	Lauraceae	16	66	13	48	13	39
18	Myrtaceae	10	59	8	37	4	24
19	Arecaceae	30	58	20	40	16	28
20	Urticaceae	15	55	10	21	14	37
Total		901	2787	679	1995	543	1486

Table 3. Twenty-one largest genera of Bangladesh's vascular flora

Sl	Name of genus	Number of species in CVPB	Number of species in EFFB	Number of species in VFCCHT	Family name
1	*Cyperus*	72	40	33	Cyperaceae
2	*Ficus*	55	48	42	Moraceae
3	*Syzygium*	36	22	20	Myrtaceae
4	*Fimbristylis*	36	31	15	Cyperaceae
5	*Dendrobium*	33	27	22	Orchidaceae
6	*Ipomoea*	30	24	18	Convoluvlaceae
7	*Crotalaria*	27	25	23	Fabaceae
8	*Persicaria*	27	20	17	Polygonaceae
9	*Euphorbia*	26	20	14	Euphorbiaceae
10	*Strobilanthes*	25	14	14	Acanthaceae
11	*Dioscorea*	23	17	17	Dioscoreaceae
12	*Solanum*	22	17	13	Solanaceae
13	*Dalbergia*	20	17	15	Fabaceae
14	*Litsea*	20	13	13	Lauraceae
15	*Ixora*	20	16	18	Rubiaceae
16	*Pteris*	20	17	14	Pteridaceae
17	*Diospyros*	19	10	11	Ebenaceae
18	*Grewia*	18	14	11	Malvaceae
19	*Pogostemon*	17	15	9	Lamiaceae
20	*Eragrostis*	17	19	10	Poaceae
21	*Thelypteris*	17	1	1	Aspleniaceae
Total		581	427	350	

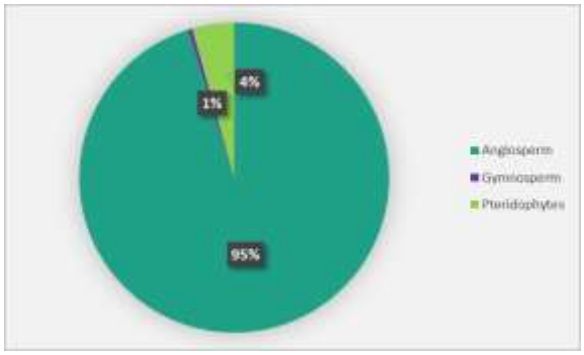

Fig. 2. Frequency of major vascular plant groups

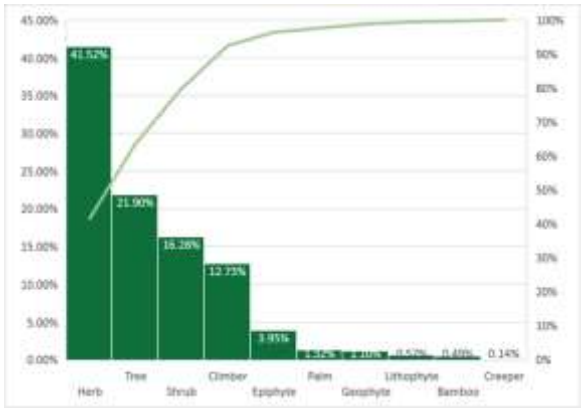

Fig. 3. Life-form spectrum of the vascular plants recorded in Bangladesh

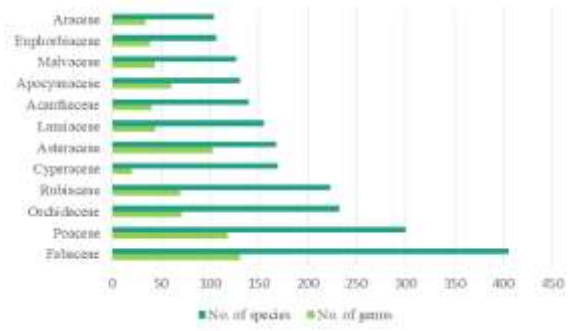

Fig. 4. Distribution of dominant taxonomic families, defined as those represented by 100 or more plant species

The present study identified 20 dominant plant families within the vascular flora of Bangladesh, and our findings were compared to two major references: the Encyclopedia of Flora and Fauna of Bangladesh (EFFB) and the Vascular Flora of Chittagong and the Chittagong Hill Tracts (VFCCHT) (Table 2).

The results highlight both consistencies and divergences in species and genus representation, reflecting regional variations and the dynamics of flora research across Bangladesh. The inclusion of 4754 taxa, represents a notable expansion compared to earlier records, such as the Encyclopedia of Flora and Fauna of Bangladesh (EFFB), which listed 3649 vascular plant species (Ahmed *et al.,* 2008, 2009; Siddiqui *et al.,* 2007). This expansion can be attributed to both intensified botanical exploration and the digital accessibility of plant data (Uddin *et al.,* 2023; Hossain *et al.,* 2022). The twenty-one dominant genera in Bangladesh's vascular flora are shown in Table 3. These genera are spread over 19 families embracing 581 species. Among the plant genera documented in Bangladesh, Cyperus leads with the highest number of species (72), followed by Ficus (55), Syzygium (36), Fimbristylis (36), Dendrobium (33), and Ipomoea (30). Collectively, these six genera account for approximately 12.24% of the country's total plant species.

The CVPB demonstrates the dominance of angiosperms, which is consistent with global patterns in tropical flora, where these families are ecologically dominant due to their adaptability to diverse environments (Odorico *et al.,* 2022). The checklist also highlights the importance of herbaceous species, which constitute the majority of taxa, particularly in regions with varying climatic and ecological conditions. This result mirrors findings from other tropical regions, where herbaceous plants contribute significantly to overall biodiversity (Haque *et al.,* 2018; Shetu *et al.,* 2022). The CVPB reports an endemism level of 1.03%, with 49 endemic species, concentrated mainly in ecologically sensitive areas such as the Chittagong Hill Tracts, Moulvibazar and the Sylhet (Uddin *et al.,* 2024).

Fabaceae, Poaceae, and Orchidaceae emerge as the leading families in terms of species diversity within the Checklist of Vascular Plants of Bangladesh (CVPB), representing 901 genera and 2,787 species overall (Table 2). This is significantly higher than the species count reported in both EFFB and VFCCHT. Specifically, Fabaceae shows a substantial difference, with 405 species reported in CVPB compared to 254 species in EFFB and 200 species in

VFCCHT. This may indicate under representation or a more focused regional assessment in the earlier studies, as well as the potential discovery of new species during the more recent CVPB survey (Ahmed *et al.,* 2009a). Moreover, families like Asteraceae and Euphorbiaceae display similar patterns of higher species diversity in CVPB, supporting the hypothesis that broader geographic coverage and updated taxonomic methodologies contribute to these findings. Interestingly, families such as Cyperaceae and Malvaceae, while consistently present across all studies, do not show as wide a divergence in species count, suggesting that these families may be well-documented and less influenced by recent survey efforts (Siddiqui *et al.,* 2007b). At the genus level, *Cyperus*, *Ficus*, and *Syzygium* dominate in terms of species richness, with *Cyperus* alone representing 72 species in CVPB, compared to 40 in EFFB and 33 in VFCCHT (Table 3). This pattern suggests that these genera are widely distributed across the diverse ecosystems of Bangladesh, from coastal regions to hill tracts, and likely serve as key ecological components in various habitats. It is important to note that while the overall species diversity in CVPB exceeds that of EFFB and VFCCHT, certain families and genera are better represented in earlier works. For example, VFCCHT shows a more comprehensive representation of the Orchidaceae family, possibly due to its focused survey of the hilly regions known for high orchid diversity (Uddin and Hassan, 2018a). This highlights the importance of localized studies in capturing unique regional flora not represented in nationwide surveys.

The addition of new species and genera, particularly in underexplored areas, suggests that ongoing research efforts are crucial for accurately documenting biodiversity. These findings advocate for continued botanical exploration, particularly in regions like the Chittagong Hill Tracts, where the complex topography and unique microclimates may harbor yet undocumented species (Uddin and Hassan, 2018a, 2018b, 2018c). In conclusion, the CVPB provides a more comprehensive and updated reflection of Bangladesh's vascular flora compared to earlier works. The observed discrepancies in species and genus numbers between CVPB and other floristic surveys emphasize the need for continual taxonomic revision and the importance of integrating regional studies into national biodiversity assessments. Future research should focus on areas that remain underexplored and on documenting the impact of environmental changes on plant diversity.

Following the completion of the nation's first plant census, and accounting for ongoing species introductions and exotic naturalization, we estimate that the flora of Bangladesh comprises approximately 6,000 taxa. Future efforts should focus on preserving national floristic knowledge to ensure it remains easily accessible, regularly updated, and capable of supporting botanical research and plant diversity conservation in Bangladesh.

ACKNOWLEDGEMENTS

We are grateful to the CVPB reviewers for their valuable assistance over the years. We express our special thanks to the participating individuals and organizations, particularly the Botanical Research Centre, Botanika, and the Nature Conservation Network (NCN).

REFERENCES

Ahmed ZU, Begum ZNT, Hassan MA, Khondker M, Kabir SMH, Ahmad M, Ahmed ATA, Rahman AKA, Haque EU (eds). 2008a. Encyclopedia of Flora and Fauna of Bangladesh: Angiosperms, Dicotyledons (Acanthaceae–Asteraceae). Asiatic Society of Bangladesh, Dhaka, **6**, 1–408.

Ahmed ZU, Hassan MA, Begum ZNT, Khondker M, Kabir SMH, Ahmad M, Ahmed ATA, Rahman AKA, Haque EU (eds). 2008b. Encyclopedia of Flora and Fauna of Bangladesh: Angiosperms, Dicotyledons (Balsaminaceae–Euphorbiaceae). Asiatic Society of Bangladesh, Dhaka, **7**, 1–546.

Ahmed ZU, Hassan MA, Begum ZNT, Khondker M, Kabir SMH, Ahmad M, Ahmed ATA, Rahman AKA, Haque EU (eds). 2008c. Encyclopedia of Flora and Fauna of Bangladesh: Angiosperms, Monocotyledons (Orchidaceae–Zingiberaceae). Asiatic Society of Bangladesh, **12**, 1–505.

Ahmed ZU, Hassan MA, Begum ZNT, Khondker M, Kabir SMH, Ahmad M, Ahmed ATA, Rahman AKA (eds). 2009a. Encyclopedia of Flora and Fauna of Bangladesh: Angiosperms, Dicotyledons (Fabaceae–Lythraceae). Asiatic Society of Bangladesh, **8**, 1–478.

Ahmed ZU, Hassan MA, Begum ZNT, Khondker M, Kabir SMH, Ahmad M, Ahmed ATA (eds). 2009b. Encyclopedia of Flora and Fauna of Bangladesh: Angiosperms, Dicotyledons (Magnoliaceae–Punicaceae). Asiatic Society of Bangladesh, **9**, 1–488.

Ahmed ZU, Hassan MA, Begum ZNT, Khondker M, Kabir SMH, Ahmad M, Ahmed ATA (eds). 2009c. Encyclopedia of Flora and Fauna of Bangladesh: Angiosperms, Dicotyledons (Ranunculaceae–Zygophyllaceae). Asiatic Society of Bangladesh, **10**, 1–580.

Haque AKMK, Khan SA, Uddin SN, Shetu SS. 2018. An annotated checklist of the angiospermic flora of Rajkandi Reserve Forest of Moulvibazar, Bangladesh. Bangladesh Journal of Plant Taxonomy **25(2)**, 187–207.

Hossain GM, Khan SA, Shetu SS, Rahman MS, Ahmed FA, Ali MH. 2022. Floristic survey of vascular plants in coastal district Bagerhat of Bangladesh. Bangladesh Journal of Plant Taxonomy **29(1)**, 43–78.

Islam KK, Uddin SN. 2021. Vascular flora of Poly and Remakri Pransa forests range under Bandarban district in Bangladesh. Bulletin of Bangladesh National Herbarium **7**, 56–144.

Khan SA, Sultana S, Hossain GM, Shetu SS, Rahim MA. 2021. Floristic composition of Jahangirnagar University Campus – A semi-natural area of Bangladesh. Bangladesh Journal of Plant Taxonomy **28(1)**, 27–60.

Odorico D, Nicosia E, Datizua C, Langa C, Raiva R, Souane J, Nhalungo S, Banze A, Caetano B, Nhauando V, Ragú H, Jr MM, Caminho J, Mutemba L, Matusse E, Osborne J, Wursten B, Burrows J, Cianciullo S, Malatesta L, Attorre F. 2022. An updated checklist of Mozambique's vascular plants. PhytoKeys **189**, 61–80.

Pasha MK, Uddin SB. 2013. Dictionary of Plant Names of Bangladesh (Vascular plants). Janokalyan Prokashani, Chittagong, 234 pp.

Rahman N, Uddin SN. 2018. Seventy one new additions to the angiosperm flora of Bangladesh. Bulletin of Bangladesh National Herbarium **6**, 49–70.

Shetu SS, Hossain GM, Khan SA, Rahim MA. 2022. An inventory of vascular flora of the Lalmai Hill Area of Cumilla District, Bangladesh. Bangladesh Journal of Plant Taxonomy **29(2)**, 203–240.

Siddiqui KU, Islam MA, Ahmed ZU, Begum ZNT, Hassan MA, Khondker M, Rahman MM, Kabir SMH, Ahmad M, Ahmed ATA, Rahman AKA, Haque EU (eds). 2007b. Encyclopedia of Flora and Fauna of Bangladesh: Angiosperms, Monocotyledons (Agavaceae–Najadaceae). Asiatic Society of Bangladesh, **11**, 1–399.

Siddiqui KU, Islam MA, Ahmed ZU, Begum ZNT, Khondker M, Rahman MM, Kabir SMH, Ahmad M, Ahmed ATA, Rahman AKA, Haque EU (eds). 2007a. Encyclopedia of Flora and Fauna of Bangladesh: Bryophytes, Pteridophytes and Gymnosperms. Asiatic Society of Bangladesh, **5**, 1–391.

Uddin MS, Howlader MSA, Uddin SB. 2015. Three new records of dicotyledonous plants from Bangladesh. Tropical Plant Research **2(3)**, 253–256.

Uddin MS, Lee SW. 2020. MPB 3.1: A useful medicinal plants database of Bangladesh. Journal of Advancement in Medical and Life Science **8(1)**, 1–4.

Uddin MS, Mazumder AAM, Lee SW, Uddin SB. 2024. Present status of endemic plants of Bangladesh. Journal of Biodiversity and Environmental Science **25(2)**, 70–78.

Uddin MS, Mazumder AAM, Uddin SB. 2023. Addition of one hundred and forty-seven new vascular taxa to the flora of Bangladesh. SPECIES **24(73)**, 1–8.

Uddin SN, Hassan MA. 2018a. Vascular flora of Chittagong and the Chittagong Hill Tracts. Bangladesh National Herbarium, Dhaka, **1**, 1–897.

Uddin SN, Hassan MA. 2018b. Vascular flora of Chittagong and the Chittagong Hill Tracts. Bangladesh National Herbarium, Dhaka, **2**, 1–1004.

Uddin SN, Hassan MA. 2018c. Vascular flora of Chittagong and the Chittagong Hill Tracts. Chiriakhana Road, National Herbarium, Dhaka, **3**, 1–930.

Uddin SN. 2018. Discovery of seventy-three new records of vascular plants for Bangladesh from Chittagong and the Chittagong Hill Tracts area. Bulletin of Bangladesh National Herbarium **6**, 1–47.