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Present status of endemic plants of Bangladesh

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Key words: Endemic plants, Updated checklist, Bangladesh flora

Abstract

The study of angiosperm flora, endemic plants in the literature, and investigations of 'POWO Build a Checklist' were used to compile an updated list of Bangladesh's endemic plants. According to the study, at least 49 (1.24%) of Bangladesh's 3,956 plant species are endemic to the country including 5 varieties, belonging to 41 genera in 26 families. Magnoliopsida account for thirty of them, Liliopsida for the remaining sixteen, and Pteridohpytes for the final three. The four families Zingiberaceae (9 taxa), Araceae (6 taxa), Rubiaceae (4 taxa), and Euphorbiaceae (3 taxa), include the most endemic taxa. The five most numerous endemic taxa belong to the *Curcuma* genus. The endemic flora, which is mostly found in the districts of Chattogram, Moulvibazar, and Rangamati, consists of 13 tree species, 4 shrubs, 5 climbers, and 27 herbaceous plant species.

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Introduction

Endemism refers to species that are confined in their distribution to a specific or well-defined small or large area. These taxa can be continental, national, regional, local, or provincial. Endemism results from a species' incapacity to spread its offspring due to environmental or geographic limitations (Pasha, 2011). Understanding the concept of endemism requires familiarity with the geographic range of a species. Until it is found again in another country or region, a newly discovered species is often only found in a small area and is assumed to be endemic to that location (Rahman and Rashid, 2013).

Bangladesh is a country known for its rich biodiversity, with a vast array of plant species growing in its varied geographical regions. Among these plant species, there are many that are endemic to the country, meaning that they are found only in Bangladesh and nowhere else in the world. These endemic plants of Bangladesh are an important part of the country's natural heritage, and they play a vital role in the ecological balance of the region. Bangladesh is located in the delta region of the Ganges, Brahmaputra and Meghna rivers. It is a relatively flat and low-lying country, with a tropical monsoon climate. These factors make it a highly dynamic and constantly changing environment, which may not be conducive to the evolution and persistence of many endemic plant species. Bangladesh has one of the highest population densities in the world, and much of its natural habitats have been destroyed or altered due to human activities such as deforestation, agriculture, and urbanization. This has led to the loss of many plant species and their habitats, and may have also prevented the development of many endemic species. Endemic species often develop in isolation, which allows them to evolve unique characteristics that distinguish them from other species. However, Bangladesh is not geographically isolated from other countries, and its flora has been influenced by species from neighboring regions such as India and Southeast Asia. This may have prevented the development of many endemic species. Finally, it is possible that many endemic plant species in Bangladesh have yet to be discovered or properly documented due to limited scientific exploration and research (Pasha, 2011; Rahman and Rashid, 2013). As more information becomes available, it may be possible to identify more endemic species in the country.

Compared to main lands, islands have greater rates of endemism and endemic taxa (New Caledonia and Hawaii have almost 95% each) (Takhtajan, 1986). Most countries have evaluated their own endemic plants. Numerous Asian countries, including China, India, and Malaysia, have released the updated list of their endemic taxa (Ahmedullah and Nayar, 1986). Around 33% of India's plants are endemic, according to Ahmedullah and Nayar (1986), although little is known about endemic plant species in the current Bangladesh region.

Khan *et al.* (2001) made the initial attempt, listing 14 species as being endemic to Bangladesh. Then Hassan and Ahmed (2008) increased the endemic plants number to 16 though they gave an only list of six endemic plants. Pasha (2011) mentioned 25 endemic taxa from Bangladesh. Finally, Rahman and Rashid (2013) identified the 28 endemic plants that are unique to Bangladesh. Yet, no attempt has been made to discuss or assess the endemism and endemic flora of the country since that time. In an effort to the greatest extent possible, an evaluation of Bangladesh's flora and updated list of endemic plants has been made.

Materials and methods

Early authentic literature (Roxburgh, 1820-24; Hooker, 1872-1894; Prain, 1903; Heinig, 1925; Kanjilal *et al.*, 1934-1940; Sinclair, 1955) was sought for the most current update of Bangladesh's list of endemic taxa. A very new and thorough compilation called the Encyclopedia of Flora and Fauna of Bangladesh (Siddiqui *et al.*, 2007a, 2007b; Ahmed *et al.*, 2008a, 2008b, 2008c, 2009a, 2009b, 2009c) was also consulted. A thorough cross-checking of the relevant articles such as Ahmed et al. (2008a, 2008b, 2008c, 2009a, 2009b, 2009c), Khan *et al.* (2001), Pasha (2011), Rahman and Rashid (2013), Siddiqui *et al.* (2007a, 2007b) and the 'POWO Build a Checklist' (Kew 2023) was done in order to generate the updated checklist of endemic plants of Bangladesh.

Results and discussion

The study revealed that out of 3,956 plant species of Bangladesh (Uddin *et al.*, 2023), 49 are endemic is about 1.24% of the total species. The disparate data and research are compiled to provide all the elements needed for an evaluation of each endemic taxon. The identified endemic taxa are then listed alphabetically with the accepted scientific name, family, habit, type and available herbarium specimens (Table 1).

Table 1. An updated checklist of the endemic plants of Bangladesh

SL	Endemic taxa	Familly	Habit	Type, Herbarium specimen	References
1	*Abrus precatorius* L. var. *albo-spermum* Hassan, Rahman *et* Afroz, Bangladesh J. Pl. Taxon. 28(2): 289 (2021).	Fabaceae	Climber	Bangladesh, Dhaka, Dhaka University Botanical Garden, M.A. Hassan 6001, 24 October 2021 (Holotype: DUSH)	Hassan *et al.*, 2021.
2	*Alocasia hararganjensis* H. Ara & M.A. Hassan, Bangladesh J. Pl. Taxon. 25 (2): 228 (2018).	Araceae	Herb	Bangladesh, Moulvibazar district, Gazipur beat, Hararganj reserve forest, 21.05.2005, Hosne Ara HA 1740 (DACB). Herbarium specimens: HA 1468 (DACB), HA 2885 (DACB)	Ara and Hassan, 2018.
3	*Alocasia salarkhanii* H. Ara & M.A. Hassan, Bangladesh J. Pl. Taxon. 25 (2):231 (2018).	Araceae	Herb	Bangladesh, Moulvibazar district, Lawachara reserve forest, 15.05.20005, Hosne Ara HA 1467 (DACB). Herbarium specimens: HA 2630 (DACB), HA 2651 (DACB)	Ara and Hassan, 2018.
4	*Ampelygonum salarkhanii* Hassan, Bangladesh J. Bot. 20(2): 245 (1991).	Polygonaceae	Herb	Bangladesh, Bandarban, Chimbuk hill, 1990, Hassan s.n. (DACB DUSH). Herbarium specimens: Rahman *et al.* 7954 (HCU), Anwar-0686	Islam *et al.*, 2016;Rahman and Rashid, 2013.
5	*Bambusa comillensis* Alam, Bangladesh J. Pl. Taxon. 3(2): 41 (1996).	Poaceae	Herb	Not available	Kew, 2023; POWO, 2023.
6	*Boesenbergia islamii* Yusof & M.A.Rahman, Saudi J. Biol. Sci. 10 (1): 51-55 (2003).	Zingiberaceae	Herb	Bangladesh, Chittagong, Chunati, Near forest beat office, 02.10.1997, Yusuf & Rahman, 1019 (BCSIRH: holo., HCU: iso.). Herbarium specimen: Chittagong, Sitakunda, Chandranath hill, 31.08.2009, Rahman s.n. (HCU).	Rahman and Rashid, 2013.
7	*Colocasia hassanii* H. Ara, Bangladesh J. Pl. Taxon. 25 (1): 102 (2018)	Araceae	Herb	Bangladesh, Bandarban district, on the way to Betchari, 22.9.2004, Hosne Ara HA 1215, 1216 (DACB). Herbarium specimens: HA 1291, 1292 (DACB).	Ara, 2018.
8	*Croton chittagongensis* Chakrab. & N.P. Balakr, Proc. Indian Acad. Sci., Pl. Sci. 92: 365 (1983)	Euphorbiaceae	Tree	Chittagong Hill Tracts, Rangamati, Mainamukh, 09-05-1939, Dent 72 (CAL).	Rahman and Rashid, 2013.
9	*Croton chlorocalyx* Müll.Arg., Linnaea 34: 109 (1865).	Euphorbiaceae	Shrub	Not available	Kew, 2023; POWO, 2023.
10	*Curcuma bakerii* Rahman & Yusuf, Plantae Discoverie 1: 21 (2012).	Zingiberaceae	Herb	Bangladesh, Tangail, Madhupur Sal forest,14.05.1996, Rahman & Yusuf 938 (BCSIRH: holo, HCU: iso).	Rahman and Rashid, 2013.
11	*Curcuma hookerii* Rahman & Yusuf, Plantae Discoveries 1: 23 (2012).	Zingiberaceae	Herb	Bangladesh, Chittagong, Barakundu, 18.04.1994, Rahman & Yusuf 867 (BCSIRH: holo.; HCU: iso.). Herbarium specimens: Rahman *et al.* 2773, 2774 (HCU).	Rahman and Rashid, 2013.
12	*Curcuma roxburghii* Rahman & Yusuf, Bangladesh J. Plant Taxon. 19(1): 80 (2012).	Zingiberaceae	Herb	Bangladesh, Rangamati, Rangapani, 08.07.1993, Rahman & Yusuf 803 (BCSIRH: holo.; HCU: iso.). Herbarium specimen: Rahman *et al.* 3248 (HCU).	Rahman and Rashid, 2013.
13	*Curcuma wallichii* Rahman & Yusuf, Bangladesh J. Plant Taxon. 19(1): 82 (2012).	Zingiberaceae	Herb	Bangladesh, Moulvi Bazar, Srimangal, Lawachara forest, 16.07.1993, Rahman & Yusuf 813 (BCSIRH, HCU).	Rahman and Rashid, 2013.
14	*Curcuma wilcockii* Rahman & Yusuf, Bangladesh J. Plant Taxon. 19(1): 83 (2012).	Zingiberaceae	Herb	Bangladesh, Tangail, Madhupursal forest, Rasulpur, 21.08.1993, Yusuf & Rahman 838 (BCSIRH, HCU).	Rahman and Rashid, 2013.
15	*Cuscuta chittagongensis* Sengupta, M.S.Khan & Huq, Bangladesh J. Bot. 12(1): 33-36 (1983).	Cuscutaceae	Parasite	Rangamati, Myanimukh, 24.12.1956, Khan 234A (DACB). Herbarium specimen: Bandarban: Chimbuk hill, 27.11.1983, Khan *et al.*, K.6518 (DACB).	Rahman and Rashid, 2013.
16	*Dehaasia rangamattiensis* M.Gangop., Bull. Bot. Surv. India 48: 127 (2006).	Lauraceae	Tree	Not available	Kew, 2023; POWO, 2023.
17	*Diospyros stricta* Roxb., Fl. Ind. ed. 1832. 2: 539 (1832).	Ebenaceae	Tree	Not available	Kew, 2023; POWO, 2023.

18	*Diplazium banglum* Fraser-Jenk. & Pasha, Annot. Checkl. Ind. Pterid. 2: 102 (2018).	Aspleniaceae	Herb	Not available	Kew, 2023; POWO, 2023.
19	*Dipterocarpus scaber* Buch.-Ham., Mem. Wern. Nat. Hist. Soc. 6: 300 (1826)	Dipterocarpaceae	Tree	Not available	Kew, 2023; POWO, 2023.
20	*Globba rahmanii* Yusuf, J. Econ. Taxon. Bot. 28(1): 87-90 (2004).	Zingiberaceae	Herb	Bangladesh, Khagrachari, Dheghinala-Marissha road, Teen tila, 30.08.1997, Rahman & Yusuf 1878 (BCSIRH, HCU). Herbarium specimens: Rahman & Yusuf 1020 (BCSIRH and HCU); Huq *et al.* H.5751 (DACB).	Rahman and Rashid, 2013.
21	*Globba salarkhanii* (M.A.Rahman & Yusuf) Govaerts, Taiwania 61: 269 (2016) (POWO 2023). Synonym: *Mantisia salarkhanii* Rahman & Yusuf, Saud. J. Biol. Sci. 9 (2): 105 (2002).	Zingiberaceae	Herb	Bangladesh, Bandarban, Alikadam, Guishap Jiri, 3.5.1998, Rahman & Yusuf 2891 (BCSIRH, HCU). Herbarium specimen: Rahman *et al.* 8581 (HCU).	Rahman and Rashid, 2013.
22	*Gomphostemma salarkhaniana* Khanam & Hassan, Bangladesh J. Bot. 32 (1):63-64 (2003).	Lamiaceae	Herb	Bangladesh, Sylhet, Tamabil, 13.10.1973, Khan *et al.*, K.3296 (DACB). Herbarium specimens: Huq & Mia 7873 and 7887(DACB).	Rahman and Rashid, 2013.
23	*Ipomoea salicifolia* Roxb., Fl. Ind. 2: 88 (1824).	Convolvulaceae	Climber	Not available	Kew, 2023; POWO, 2023.
24	*Knema bengalensis* W.J. de Wilde, Blumea 25(2): 413 (1979).	Myristicaceae	Tree	Cox's Bazar, Dulahazra, 31.12.1957, M. S. Khan 511 (DACB). Herbarium Specimen: Khan *et al.* 10210 (DACB).	Rahman and Rashid, 2013.
25	*Lagenandra gomezii* (Schott) Bogner & N. Jacobsen, Aqua Pl. 49 (1987). Synonym: *Cryptocoryne gomezii* Schott, Bonplandia (Hannover) 5: 221 (1857).	Araceae	Herb	Sylhet, Panchara, 1828, W. Gomez, Wall. Cat. 8958 (K-W).	Rahman and Rashid, 2013.
26	*Lagerstroemia parviflora* var. *beng halensis* C.B.Clarke in J.D.Hooker, Fl. Brit. India 2: 576 (1879).	Lythraceae	Tree	Not available	Kew, 2023.
27	*Litsea clarkei* Prain, Bengal Pl. 2:676 (1903).	Lauraceae	Tree	Chittagong, Seetakundu, Prain s.n. (CAL).	Rahman and Rashid, 2013.
28	*Maesa bengalensis* Mez, H.G.A.Engler (ed.), Pflanzenr., IV, 236: 30 (1902).	Primulaceae	Tree	Herbarium specimen: Kamrul 1411 (JUH).	Haque *et al.*, 2018.
29	*Mycetia clarkei* (Hook.f.) Razafim. & B.Bremer, Taxon 64: 293 (2015) (POWO 2023). Synonym: *Myrioneuron clarkei* Hook.f., Fl. Brit. India 3:96 (1880).	Rubiaceae	Shrub	Not available	Pasha, 2011.
30	*Nothopegia acuminata* J. Sinclair, Bull. Bot. Soc. Bengal 9 (2): 90 (1956).	Anacardiaceae	Shrub	Cox's Bazar, Kelatuli chara, 17.03.1945, Sinclair 4039 (E).	Rahman and Rashid, 2013.
31	*Oldenlandia thomsonii* (Hook.f.) Kuntze, Revis. Gen. Pl. 1: 293 (1891) (POWO 2023). Synonym: *Hedyotis thomsonii* Hook.f., Fl. Brit. India 3:63 (1880).	Rubiaceae	Herb	East Bengal, loc., 1851, J. D. Hooker s.n. (K). Herbarium specimens: Huq *et al.* H.5082 (DACB), Rahman *et al.* 8639 (HCU).	Rahman and Rashid, 2013.
32	*Persicaria eciliata* Hassan, Bangladesh J. Plant Taxon. 3(2): 87-89 (1996).	Polygonaceae	Herb	Bangladesh, Rangamati, Kaptai, 1.11.1988, Hassan 1205 (DACB).	Rahman and Rashid, 2013.
33	*Phyllanthus pendulus* Roxb., Fl. Ind. ed. 1832. 3: 663 (1832).	Phyllanthaceae	Herb	Not available	Kew, 2023; POWO, 2023.
34	*Piper carnistigmum* C.DC., Candollea 1: 186 (1923).	Piperaceae	Herb	Not available	Kew, 2023; POWO, 2023.
35	*Psychotria bangladeshica* M.Gangop. & Chakrab., J. Econ. Taxon. Bot. 13: 115 (1989).	Rubiaceae	Shrub	Not available	Kew, 2023; POWO, 2023.
36	*Pteris giasii* Fraser-Jenk. & Pasha, Taxon. Revis. Indian Subcontinental Pteridophytes: 119 (2008).	Pteridaceae	Herb	Not available	Kew, 2023.
37	*Pteris sylhetensis* Fraser-Jenk. &	Pteridaceae	Herb	Not available	Kew, 2023;

	Sushil K.Singh, Annot. Checkl. Ind. Pterid. 2: 424 (2018).				POWO, 2023.
38	*Rhaphidophora calophyllum* Schott var. *violaceus* H. Ara & M.A. Hassan, Bangladesh J. Pl. Taxon. 26(1): 20 (2019).	Araceae	Climber	Bangladesh, Moulvibazar district, Madhabkundo reserve forest, 20.05.2014, Sarder Nasir Uddin N 5242 (DACB). Herbarium specimen: N 5172 (DACB).	Ara and Hassan, 2019.
39	*Rotala tenuis* (Wight) Koehne, Bot. Jahrb. Syst. 1: 177 (1880).	Lythraceae	Aquatic herb	Not available	Kew, 2023; POWO, 2023.
40	*Syzygium amplexicaule* (Lindl.) N.P.Balakr., Bull. Bot. Surv. India 22: 173 (1980 publ. 1982).	Myrtaceae	Tree	Not available	Kew, 2023; POWO, 2023.
41	*Syzygium lanceolarium* (Roxb.) N.P.Balakr., Bull. Bot. Surv. India 22: 174 (1980 publ. 1982).	Myrtaceae	Tree	Not available	Kew, 2023; POWO, 2023.
42	*Taxillus thelocarpa* (Hook.f.) M.K.Alam, Bang. J. Bot., 14(1): 32 (1985)	Loranthaceae	Parasite	Chittagong, Kazike hat, 1851, Hook.f & Thom. s.n. (K). Herbarium specimen: Huq *et al.* H.3910 (DACB).	Rahman and Rashid, 2013.
43	*Tournefortia montana* var. *griffithii* (C.B.Clarke) I.M.Johnst., J. Arnold Arbor. 32: 117 (1953).	Boraginaceae	Climber	Not available	Kew, 2023; POWO, 2023.
44	*Trigonostemon praetervisus* Airy Shaw, Kew Bull. 37: 121 (1982).	Euphorbiaceae	Tree	Silhet (Sylhet), Wall. Cat. 8001 (K).	Rahman and Rashid, 2013.
45	*Typhonium elatum* H. Ara & M.A. Hassan, Bangladesh J. Pl. Taxon. 25 (2): 234 (2018).	Araceae	Herb	Bangladesh, Sherpur district, Samaschura beat, 10.10.2003, Hosne Ara HA 701 (DACB). Herbarium specimens: HA 1060 (DACB), HA 2889 (DACB).	Ara and Hassan, 2018.
46	*Utricularia rosettifolia* Alfasane & Hassan, Bangladesh J. Pl. Taxon. 27 (2): 206 (2020).	Lentibulariaceae	Aquatic herb	Bangladesh, Jhenaidah district, Joydia baor, M.A. Alfasane, 1686(PLHL), 19.02.2019, Acc. No. 63594 (DACB). Herbarium specimens: 1688(PLHL), 1689(PLHL), 1690(PLHL).	Alfasane *et al.*, 2020.
47	*Wendlandia amocana* Cowan, Notes Roy. Bot. Gard. Edinburgh 16: 277 (1932).	Rubiaceae	Tree	Not available	Kew, 2023; POWO, 2023.
48	*Zingiber salarkhanii* Rahman & Yusuf, Bangladesh J. Plant Taxon. 20(2):2013.	Zingiberaceae	Herb	Bangladesh, Chittagong, Sitakundu, Chandranath hill, 13.08.1993, Rahman & Yusuf 825 (BCSIRH, HCU). Herbarium specimens: Rahman & Yusuf 825 (BCSIRH, HCU).	Rahman and Rashid, 2013.
49	*Ziziphus rugosa* var. *glabrescens* Prain, Bengal Pl.: 334 (1903).	Rhamnaceae	Climber	Not available	Kew, 2023; POWO, 2023.

Legend: BCSIRH= Bangladesh Council of Scientific and Industrial Research Herbarium; CAL= Calcutta Herbarium; DACB= Bangladesh National Herbarium, Herbarium Code; DUSH= Dhaka University Salar Khan Herbarium; HCU= Herbarium of Chittagong University; JUH= Jahangirnagar University Herbarium; K= Kew Herbarium; PLHL= Herbarium of Phycology Limnology and Hydrobiology Laboratory; POWO= Plants of the World Online.

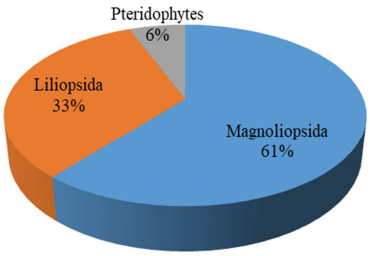

Fig. 1. Percentage of endemic taxa of each group

From the critical study on the occurrence and distribution of the angiosperm flora of Bangladesh, there are at least 49 species, including 5 varieties, belonging to 41 genera in 26 families, endemic to Bangladesh. Of these, 3 taxa under Pteridohpytes, 16 taxa belong to Liliopsida and the rest 30 species to Magnoliopsida (Fig. 1). Four families, Zingiberaceae (9 taxa), Araceae (6 taxa), Rubiaceae (4 taxa), Euphorbiaceae (3taxa) have the highest taxa representing the endemic flora (Fig. 2). There are two endemic taxa in five families (Polygonaceae, Lauraceae, Pteridaceae, Lythraceae, and Myrtaceae), and one endemic taxon in each of the remaining seventeen families. Among these, 13 are tree species, 4 shrubs, 5 climbers and 27 herbs (Fig. 3). Curcuma genus includes five highest numbers of endemic taxa

(Fig. 4). Chattogram, Moulvibazar, and Rangamati district are home to the most endemic taxa (Fig. 5).

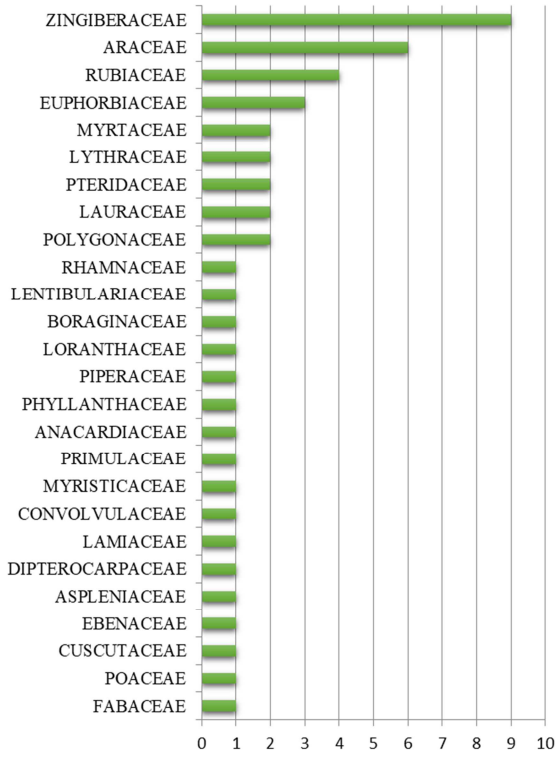

Fig. 2. Families with number of endemic taxa

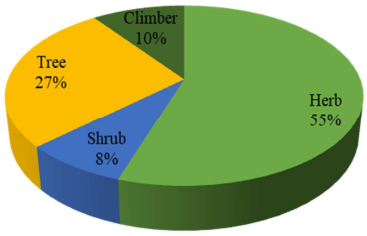

Fig. 3. Percentage of endemic taxa of each life form

Khan *et al.* (2001) first listed the 14 endemic plants of Bangladesh. Hasan and Ahmed (2008) increased the number of endemic plants in Bangladesh from 14 to 16 despite only providing a list of six endemic plants, including *Nothopegia acuminata*, *Lagenanda gomezii*, *Taxillus thelocarpa*, *Rotala simpliciuscula*, *Phrymis imbricata*, *Knema bengalensis*. Pasha (2011) identified 16 endemic taxa from the list of Khan *et al.* (2001) and found 25 endemic plant species. Pasha (2011) disqualified three species from being considered endemic to Khan's list: *Bulbophyllum roxburghii* (Lindl.) Reichb. f., *Butea listeri* (Prain) Blatter, and *Hedychium speciosum* Wall. ex Roxb. Though Khan *et al.* (2001) mentioned *Corypha taliera* Roxb. as endemic to Bengal and *Bulbophyllum roxburghii* (Lindl.) Reichb.f. endemic to Sundarban. Besides this, Pasha added 12 more species as endemic taxa. Finally, Rahman and Rashid (2013) recognized 28 endemic plant species' conservation status through their own field research, whether or not it is obvious that the IUCN standard approach was followed. Rahman and Rashid (2013) noted that 11 of the 25 endemic plants (Pasha, 2011) and 7 of the 8 endemic plants (Khan *et al.*, 2001) are found outside of Bangladesh. We discovered that 7 plants on Rahman and Rashid's (2013) list are present globally (Table 2). So, these species ought to be disregarded while compiling the list of endemic plants. In this method, the list of endemic flora was updated.

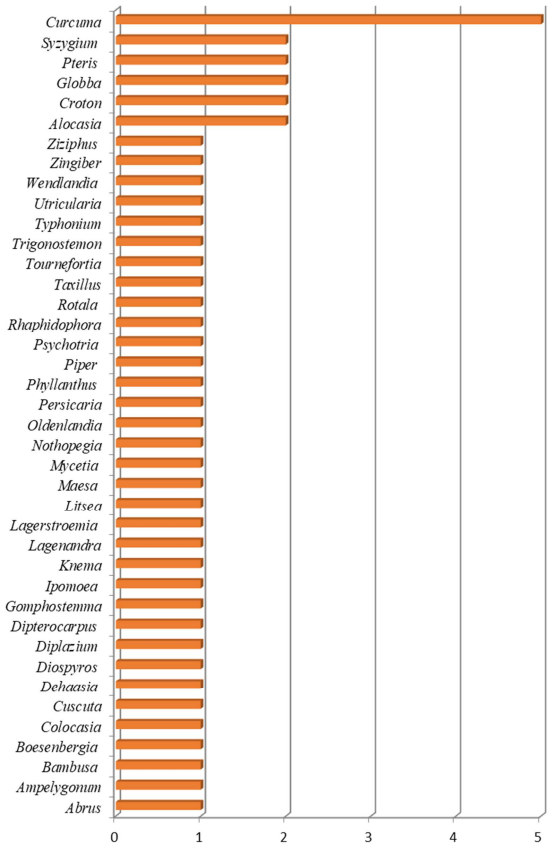

Fig. 4. Genera with number of endemic taxa

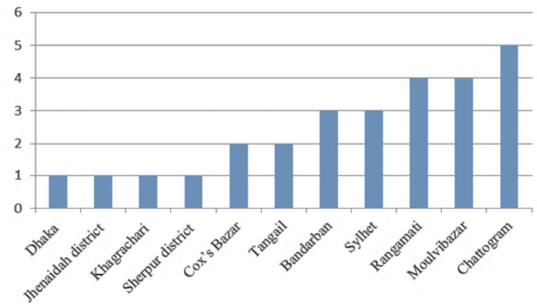

Fig. 5. Representation of the number of endemic taxa based on geographic distribution in Bangladesh

Twenty-two plants were identified as being endemic to Bangladesh by comparing Khan *et al.* (2001), Pasha (2011), Rahman and Rashid (2013), whereas other taxa were determined to be spread around the world. Between 1983 and 2021, 26 new species were added to Bangladesh's flora; following a rigorous examination of each species' global range, we discovered an additional 23 species that are exclusive to Bangladesh. However because of habitat loss, climate change, and other human activities, many of these endemic plant species are threatened, which highlights the importance of conservation efforts to save these priceless plant resources. In this regard, it is crucial to comprehend and promote knowledge of Bangladesh's unique flora in order to protect the nation's natural legacy for future generations.

Table 2. Endemic plants reported by Rahman and Rashid (2013), their global distribution

SL	Rahman and Rashid (2013)	Remarks (Distribution)
1.	*Cyperus pilosus* Vahl var. *polyantha* C.B. Clarke	Synomym of *Cyperus pilosus* Vahl Asia to E. Australia (POWO, 2023a)
2.	*Dalbergia confertiflora* Benth. var. *listeri* Thoth	Synomym of *Dalbergia confertiflora* Benth. Assam to W. Indo-China (POWO, 2023b)
3.	*Iodes thomsoniana* Baill.	Synomym of *Mappianthus hookerianus* (Baill.) Sleumer, Arunachal Pradesh to W. Malesia (POWO, 2023c)
4.	*Limnophila cana* Griff.	Myanmar (POWO 2023d)
5.	*Periploca acuminata* Rahman & Wilcock	Synomym of *Decalepis khasiana* (Kurz) Ionta ex Kambale, Assam to S. China and Indo-China (POWO, 2023e)
6.	*Rotala simpliciuscula* (Kurz) Koehne	Myanmar (POWO, 2023f)
7.	*Tarenna scandens* (Roxb.) Good	Synomym of *Tarenna eketensis* var. *situtela* N.Hallé, Nigeria to Cabinda (POWO, 2023g)

Conclusion

A total of 49 plant species, comprising 22 taxa discovered in earlier research and 27 newly added taxa, have been determined to be endemic to Bangladesh.

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