



Research Article

Addition to the Angiospermic Flora of Bangladesh: Family Acanthaceae

Mohammad Ashrafuzzaman, Abul Khayer Mohammad Golam Sarwar✉

Laboratory of Plant Systematics and Biodiversity, Department of Crop Botany, Bangladesh Agricultural University, Mymensingh 2202, Bangladesh

ARTICLE INFO	ABSTRACT
<p>Article history Received: 09 Oct 2021 Accepted: 05 Dec 2021 Published: 31 Dec 2021</p> <p>Keywords Acanthaceae, New records, <i>Odontonema</i>, <i>Whitfieldia</i>, Bangladesh</p> <p>Correspondence A. K. M. Golam Sarwar ✉: drsarwar@bau.edu.bd</p>	<p>During updating the plant holding database of the Botanical Garden, Bangladesh Agricultural University, we have identified seven species of the family Acanthaceae in cultivation new to the flora of Bangladesh: <i>Strobilanthes alternata</i> (Burm.f.) Moylan ex J.R.I.Wood, <i>Hypoestes phyllostachya</i> Baker, <i>Justicia plumbaginifolia</i> J.Jacq., <i>Odontonema tubaeforme</i> (Bertol.) Kuntze, <i>Pseuderanthemum maculatum</i> (Lodd.) I.M.Turner, <i>Pseuderanthemum laxiflorum</i> (A.Gray) F.T.Hubb. ex L.H.Bailey and <i>Whitfieldia elongata</i> (P.Beauv.) DeWild. & T.Durand. Genera <i>Odontonema</i> and <i>Whitfieldia</i> are reported for the first time in Bangladesh. The taxonomic descriptions of the species, including the most recent nomenclature and the most frequently used synonyms, as well as information on flowering and fruiting time, ecology, mode of propagation, uses, global distribution, and conservation status, are presented here.</p>
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Introduction

The family Acanthaceae comprises ca. 225 genera and 3,200–4,000 species, most species have showy bilaterally symmetric flowers, and the family includes tropical herbs, vines, shrubs, and even trees (Simpson, 2010); some are epiphytes. The representatives of the family can be found in nearly every habitat, including dense or open forests, in scrublands, on wet fields and valleys, at the sea coast and in marine areas, and in swamps and as an element of mangrove woods. Only a few species are distributed in temperate regions. There are four main centres of distribution viz. Indonesia and Malaysia, Africa, Brazil, and Central America (Begum, 1993). Many plants of the family possess medicinal properties for example cough (*Justicia adhatoda* and *Barleria cristata*), jaundice (*Ecbolium* roots), liver diseases (*Andrographis paniculata*), fever (*Phlogacanthus thyrsoiflorus* fruits and leaves), etc. (Khan et al., 2017). Leaves of *Phlogacanthus tubiflorus* when rubbed in water yields lather which is used as

soap for washing purposes. Many plants are cultivated for ornamental purposes viz. *Acanthus*, *Barleria*, *Justicia*, *Thunbergia*, *Jacobinia*, *Ruellia*, are often used as a hedge.

Begum (1993) described a total of 87 species and 4 varieties, among which 10 species were new records for Bangladesh. The members of the family increased to 107 taxa under 39 genera in the “Encyclopedia of Flora and Fauna of Bangladesh” (Begum et al., 2008). Several species have been recorded new to the flora of Bangladesh since the last countrywide treatment (Uddin et al., 2015; Islam and Rahman, 2017; Uddin, 2018). As a part of updating the plant holding database of the Botanical Garden, Bangladesh Agricultural University (BAUBG) (Sarwar, 2019, 2020; Ashrafuzzaman and Sarwar, 2021; Ashrafuzzaman et al., 2021), we have identified seven species of the family Acanthaceae in cultivation new to the flora of Bangladesh: *Strobilanthes alternata* (Burm.f.) Moylan ex

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J.R.I.Wood, *Hypoestes phyllostachya* Baker, *Justicia plumbaginifolia* J.Jacq., *Odontonema tubaeforme* (Bertol.) Kuntze, *Pseuderanthemum maculatum* (Lodd.) I.M.Turner, *Pseuderanthemum laxiflorum* (A.Gray) F.T.Hubb. ex L.H.Bailey and *Whitfieldia elongata* (P.Beauv.) DeWild. & T.Durand. These species might be collected from different field (Forest) visits in home and abroad, nurseries during “Tree Fair(s)” organized by the Ministry of Forest, Environment and Climate Change, Govt. of the People’s Republic of Bangladesh and/or personal communication (collection).

These species and even the genera *Odontonema* Nees and *Whitfieldia* Hook. were not included in the previous reports covering the country (Begum, 1993; Begum et al., 2008). There is no mention of the species in the recent floristic accounts that covered the major floristic areas of the country (Hossain and Hossain, 2014; Haque et al., 2018; Harun-Ur-Rashid et al., 2018; Rahman et al., 2018; Khan et al., 2021).

This article includes taxonomic descriptions of the species, including the most recent nomenclature and the most frequently used synonyms, in addition to information on flowering and fruiting time, ecology, mode of propagation, uses, global distribution and conservation status (in Bangladesh).

Materials and Methods

A detailed survey on the plant genetic resources growing and conserved throughout BAUBG has been carried out through frequent visits. During these visits, fresh flowering samples were collected; herbarium specimens were prepared as vouchers by drying the fresh samples following standard procedure (Anon., 1996.). The dried specimens were mounted on the herbarium sheet and preserved in Prof. Dr. Arshad Ali Herbarium, Department of Crop Botany, Bangladesh Agricultural University (AAHBAU). The collected fresh (or dried) specimens were identified in the field or by comparison with herbarium specimens or pertinent published literature (and online resources). While updating the list of the family Acanthaceae, the authors came across a few interesting specimens which, after critical examination and with help of web resources and type specimens, identified as *Strobilanthes alternata* (Burm.f.) Moylan ex J.R.I.Wood, *Hypoestes phyllostachya* Baker, *Justicia plumbaginifolia* J.Jacq., *Odontonema tubaeforme* (Bertol.) Kuntze, *Pseuderanthemum maculatum* (Lodd.) I.M.Turner, *Pseuderanthemum laxiflorum* (A.Gray) F.T.Hubb. ex L.H.Bailey, and *Whitfieldia elongata* (P.Beauv.) DeWild. & T.Durand. A comprehensive description and colour photographs are provided for easy identification of the species. The distribution and botanical names were

updated following “Plants of the World Online” <<https://powo.science.kew.org/>>.

Results and Discussion

***Strobilanthes alternata* (Burm.f.) Moylan ex J.R.I.Wood, *Novon* 23(3): 389 (2014)**

Ruellia alternata Burm.f., Fl. Ind. 135 (1768). TYPE: Indonesia, Java, Kleynhoff, C. s.n., G [barcode] G00380813); *Ruellia colorata* Blume, Bijdr. Fl. Ned. Ind. 14: 795 (1826). *Hemigraphis alternata* (Burm.f.) T.Anderson, J. Proc. Linn. Soc., Bot. 7: 114 (1864). *Hemigraphis colorata* (Blume) Hallier f., Nova Acta Acad. Caes. Leop.-Carol. German. Nat. Cur. 70: 199 (1897). TYPE: Indonesia, Java, s.d., H. Zollinger 544 (types, B, G-BOISS, G-DC); *Blechnum cordatum* Leonard., Publ. Carnegie Inst. Wash. 461: 200, figure 2 (1936).

Common names: Red ivy, red-flame ivy, purple waffle plant, cemetery plant, metal leaf, metal-leaf, metallic plant

A prostrate, perennial herb (Figure 1A). Stems 30–75 cm long, subquadrangular, sparingly puberulous, rooting at the nodes. Leaves opposite, ovate to oblong, 4–10 cm x 3–6 cm, base rounded or cordate, apex subobtusate, margins toothed; upper surface purplish-grey, lower surface dark purple-green to wine red, rather densely pubescent to sub-glabrous on veins beneath; petiole 2–5.5 cm long; stipules early caducous (Figure 1B). Inflorescence an inconspicuous, short-lived terminal spike, up to 10 cm long, peduncle 1–4.5 cm long, pilose, bracts imbricate, 7–15 mm x 4.5 mm, greenish-purple, bracteoles minute or absent. Flowers usually in pairs in the axils of lower bracts, solitary in axils of higher bracts, bisexual (Figure 1C); calyx 5-parted, 7–10 mm long, green; corolla tubular, cylindrical below, swollen above, 10–15 mm long, inside posterior side hairy, with 5 sub-equal lobes, white, sometimes with thin purple veins; stamens 4, inserted at the base of the widening of the corolla tube, slightly didynamous, 2-celled, filaments hairy below, glandular above; ovary superior, 2-celled, stigma lobes subulate, posterior one longer. Fruit a narrowly ellipsoid capsule, four-sided, 6–12-seeded. Seeds flat, hairy.

Flowering & fruiting: February-May, all year round

Chromosome number: 2n = 28 (Schmelzer, 2003)

Ecology: Moist lands

Mode of propagation: Stem cutting, Seed

Uses: *Strobilanthes alternata* leaves have diuretic properties, because of their high potassium content. In Java, they are considered styptic and used to stop bleeding from wounds, haemorrhage after parturition, venereal discharges, dysentery and haemorrhoids.

Leaves in decoction are taken internally to treat excessive menstruation and are applied externally for skin complaints. The leaves are eaten as a cure for gallstones. In Vietnam, the leaves are also used to treat haemorrhoids (Schmelzer, 2003). Incredible potency to heal wounds (Hilal, 2019). It is often cultivated as an ornamental in borders, particularly for its attractive foliage, but also as a ground cover. Invasive weed in Australia.

Distribution: Indigenous in the eastern half of Malesia, Indonesia, Malaysia, India, Thailand, the Philippines, Vietnam, Hawaii and South America. In Bangladesh, it is so far recorded in cultivation only as ornamental.

Conservation status: *Strobilanthes alternata* is currently known only in cultivation state, hence no threat has been assessed and is considered as Least Concern.

The species can be easily identified by cordate deep purple foliage with metallic sheen and base.

Representing specimens examined: Mymensingh, Botanical Garden, Bangladesh Agricultural University, cultivated, 29.09.21. Ashrafuzzaman & Sarwar s.n. (AAHBAU)

Hypoestes phyllostachya Baker, *J. Linn. Soc. Bot.* 22: 511 (1887). *SYNTYPE:* Madagascar Baron 4907 (K000379184)

<http://specimens.kew.org/herbarium/K000379184>

Hypoestes sanguinolenta (Veitch ex Van Houtte) Hook., *Bot. Mag.* 91: t. 5511 (1865); *Eranthemum sanguinolentum* Veitch ex Van Houtte, *Ann. Gén. Hort.* 16: 157 (1865); *Eranthemum sanguinolentum* Hort. ex Veitch, in *Fl. des Serres Ser. II, v.* (1865) 157. t. 1583.

Common names: Polka dot plant, Flamingo plant, Freckleface, Measles plant, Pink dot

Spreading perennial evergreen shrub, up to 60 cm, tall with slender pubescent stems (Figure 1D). Leaves ovate, 3–6 x 2.5–3.5 cm long, deltoid at the base, acute or obtuse, thin, green and glabrous on both surfaces, heavily-spotted pink-purple or white, forms bushy and compact tufts, opposite, oval and pointed, petioles of 2 to 4 cm long (Figure 1E). Inflorescence axillary and terminal dichasiate spikes, dichasia 1- to several flowered, sessile, alternate along spikes (Figure 1F), spikes 15–20 cm long, lax, simple or forked at the base, small, solitary pink/purple flowers at the nodes that resemble honeysuckle, bract heteromorphic, elliptic to subcircular, involucre cylindrical, pubescent, 1–1.5 cm long, calyx much shorter than the involucre, corolla resupinate, 2.0 – 3.0 cm, pubescent, corolla-tube 1.5

cm long, limb bilabiate, lower lip 0.6 cm long, cuneate, upper lip reflexed, shortly 3-lobed, stamens 2, reaching to the tip of the corolla-limb, anther 1-theous, the thecae lacking basal appendages; stipitate, many-seeded dehiscent capsule.

Flowering & fruiting: November-January.

Chromosome number: 2n = 30 (Daniel and Chuang, 1998)

Ecology: Moist lands, up to 1500 m.

Mode of propagation: Seed, Stem cutting

Uses: Indoor plant, invasive, obnoxious weed

Distribution: Native to Madagascar, introduced into India, Colombia, Costa Rica, East Himalaya, El Salvador, Guatemala, Honduras, Mexico, Mexico Gulf, Norfolk Is., Panamá, Paraguay, Belize, Benin, Chad, Chagos Archipelago, Cook Is., Fiji, Florida, Hawaii, Jawa, Malaya, Myanmar, New Guinea, Nicaragua, Niue, Philippines, Puerto Rico, Samoa, Society Is., Solomon Is., Sumatera, Thailand, Trinidad-Tobago, Vietnam, Wallis-Futuna Is. In Bangladesh, it is so far recorded in cultivation only.

Conservation status: *Hypoestes phyllostachya* is currently known only in cultivation state, hence no threat has been assessed and is considered as Least Concern.

The species can usually be easily recognised by its distinctly spotted leaves.

Representing specimens examined: Mymensingh, Botanical Garden, Bangladesh Agricultural University, cultivated, 23.11.20. Ashrafuzzaman & Sarwar s.n. (AAHBAU)

Justicia plumbaginifolia J.Jacq., *Ecl. Pl. Rar.* 1: 20 (1811).

Beloperone oblongata Nees, *Pl. Asiat. Rar.* (Wallich). 3: 102 (1832). *Beloperone oblongata* Lindl., *Edwards's Bot. Reg.* 20: t. 1657 (1834). *Beloperone plumbaginifolia* Nees, *Pl. Asiat. Rar.* (Wallich). 3: 102 (1832). *Beloperone plumbaginifolia* var. *angustifolia* Nees, *Fl. Bras.* (Martius) 9: 140 (1847). *Beloperone plumbaginifolia* var. *macrophylla* Nees; *Dimanisa oblongata* Raf., *Fl. Tellur.* 2: 84 (1837).

Common names: Pink parfait Justicia, Snake grass

Shrub, glabrous, nodal region longitudinally furrowed (lower portion) and constricted (upper portion), up to 1.5 m long (Figure 1G). Leaves oblong, glabrous, opposite–decussate, 6–8 x 1.5–2.0 cm, petiole larger or equal the 4 mm long; elliptic/obovate, apex acuminate (Figure 1H). Inflorescence thyrse spiciform simple, axillary or terminal, cymule biparous with 3 buds

floriferous fertile, usually more of the 3 flowers by node and whorled on the rachis (Figure 1I); bract(s) foliaceous, oblong/lanceolate/ovate, acuminate, green/purple; calyx 5-lobate, lobe(s) subequal, hairy, simple short, usually 3/4 of the corolla length; corolla lip lower flattened, bilabiate simple, up to 5 cm long, length of the corolla tube (non-expanded portion) bigger than the size total of the calyx, form of the lip upper of the corolla oblong deltoid/cymbiform, colour of the lobe(s) lateral of the lip lower of the corolla (internally) pink/magenta, colour of the palate (internally) white/pink/magenta; position of the theca

as to connective sub-equal, theca 2 fertile with the upper mucous and the lower appendiculate. Capsule panduriform, seeds strongly compressed, smooth, with a complete margin.

Flowering & fruiting: August-November

Chromosome number: $2n = 28$ (Govindarajan and Subramanian, 1985)

Ecology: Tropical, subtropical zones.

Mode of propagation: Stem cutting, Seed

Uses: Pothouse plant, leaf extract used as an antidote to poison bites (Thomas et al., 2020)



Figure 1. Photographs illustrating new species. **A–C.** *Strobilanthes alternata*; **D–F.** *Hypoestes phyllostachya*; **G–I.** *Justicia plumbaginifolia*.

Distribution: Native to Brazil. Introduced and cultivated in Mexico and India, In Bangladesh, it is so far recorded in cultivation only.

Conservation status: *Justicia plumbaginifolia* is currently known only in cultivation state, hence no threat has been assessed and is considered as Least Concern.

The species can be easily identified by spiciform thyse, axillary or terminal inflorescence with bilabiate pink/magenta flowers.

Representing specimens examined: Mymensingh, Botanical Garden, Bangladesh Agricultural University, cultivated, 13.09.20. Ashrafuzzaman & Sarwar s.n. (AAHBAU)

Odontonema tubaeforme (Bertol.) Kuntze, *Revis. Gen. Pl.* 2: 494 (1891). TYPE: Guatemala. *Escuintla: Escuintla, 1836, Velasquez s.n. (HOLO-TYPE: BOLO, microfiche!)*. *Justicia tubaeformis* Bertol., *Nuovi Ann. Sci. Nat.* 1: 410 (1838). *Odontonema amicorum* V.M.Baum, *Brittonia* 34(4): 425(-426; figs.) (1982). TYPE: Belize. Temash River, in 1935, Schipp 1353 (HOLOTYPE: K; ISOTYPES: A, F, G, GH, MICH, NY; Baum 1982). *Odontonema flagellum* Kuntze, *Revis. Gen. Pl.* 2: 494 (1891).

Common names: Cardinal flower, Cardinal guard, Fire spike, Firespike, Odontonema, Red justicia, Scarlet flame

Shrub or suffrutescent herb, up to 2 m tall, glabrous to puberulent (Figure 2A). Leaves elliptic to ovate, up to 25 x 10 cm, occasionally much larger on fast-growing shoots, acuminate at apex, base decurrent to a short petiole, 0.5–2 cm long, puberulent beneath along midrib (Figure 2B). Inflorescence spicate, up to 15(–40) cm long, narrow, rarely 2 or 3 lateral spikes arising from the base (Figure 2C), peduncle up to 15–20 cm, with or without 2 reduced leaves part way up, rachis and cymules puberulent, cymules very short, fasciculiform, pedicels 1–3(–5) mm long, flowers 3 or more, congested, subtended by tiny triangular mucronulate bracts and similar but smaller bracteoles, calyx bright red, campanulate, 2–2.5 cm long, divided about halfway into 5 subequal narrowly ovate acuminate lobes, acute lobes 1–2 mm long; corolla 20–30 mm long, red, tubular, tube slightly ampliate upward, scarcely bilabiate, 5 more or less similar short lobes spreading, ovate, rounded at apex, the lobes 2–5 mm long, fertile stamens 2, anthers 2.5 mm long, included; style capillary, 13 mm long, glabrous, stigma minutely capitate. Capsule stipitate, ellipsoid.

Flowering & fruiting: July-September.

Chromosome number: 2n=42 (Daniel et al., 1990)

Ecology: Lowland rain forests, lower montane rain forests, and cloud forests, 30-1650 m.

Mode of propagation: Seed, Stem cutting

Uses: Ornamental, Weed

Distribution: Native to Mexico and Central America (i.e., Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama), introduced to Cook Is., Florida, Hawaii, Samoa, Society Is., Tonga, Trinidad-Tobago India. In Bangladesh, it is so far recorded in cultivation only.

Conservation status: *Odontonema tubaeforme* is currently known only in cultivation state, hence no threat has been assessed and is considered as Least Concern.

The species can be easily distinguishable by the opposite, attenuate leaves, dense terminal racemes bearing inconspicuous bracts, and red, tubular, five-lobed flowers.

Representing specimens examined: Mymensingh, Botanical Garden, Bangladesh Agricultural University, cultivated, 23.08.21. Ashrafuzzaman & Sarwar s.n. (AAHBAU)

Pseuderanthemum maculatum (Lodd.) I.M.Turner, *Taxon* 65(5): 1134 (2016). Lectotype (designated here): [illustration] "*Justicia maculata*" in Loddiges, *Bot. Cab.* 7: t. 626. (1822).

Pseuderanthemum carruthersii (Seem.) Guillaumin, *Ann. Mus. Colon. Marseille sér.* 6, 5-6: 48 (1948). TYPE: Java, Gecultiveerd Java, 27 Apr. 1939, anonymous s.n. (lectotype L [L0002973!], designated by Fosberg (1980)). *Eranthemum carruthersii* Seem., *Fl. Vit.* 185 (1866). *Pseuderanthemum atropurpureum* (W.Bull) Radlk., *Sitzungsber. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. München* 13: 286 (1883 publ. 1884). *Pseuderanthemum carruthersii* var. *atropurpureum* (W.Bull) Fosberg, *Phytologia* 5: 290 (1955). *Eranthemum atropurpureum* W.Bull, *Gard. Chron. n.s.*, 3: 619 (1875).

Common names: Purple False Eranthemum

Shrub, glabrous, maroon to magenta, 1–3 m high, rooting at the nodes (Figure 2D). Leaf-blades elliptic to ovate or oblong, (4–)8–20 cm x (3–)4–10 cm, usually 2–3 times longer than broad, dark green to purple or more often variously variegated, purplish- or yellow-blotched or green- and yellow-mottled, petioles 5–20 mm long. Inflorescences many-flowered, rich purple, calyx lobed, ovate to lanceolate, sometimes rich purple, corolla tube usually rich purple, the lobes ovate, obtuse, rich pink

with paler mottling or white, the throat purple-spotted, 2 fertile and 2 sterile stamens, anther protruded, filaments and style often purple-tinged (Figure 2E–F). Fruits capsule-like, club-shaped, containing 4 flat seeds.

Flowering & fruiting: Throughout the year

Chromosome number: $2n=42$ (Daniel and Chuang, 1998)

Ecology: cultivated from near sea level to about 250 m

Mode of propagation: Stem cutting, Seed

Uses: Garden ornamental and cultural plants (Smith, 1991). Used as a sacred plant in many ceremonies as in Thailand (Choopan et al., 2018), healing wounds and anti-inflammatory activity in Vietnamese traditional medicine (Pham, 2001).

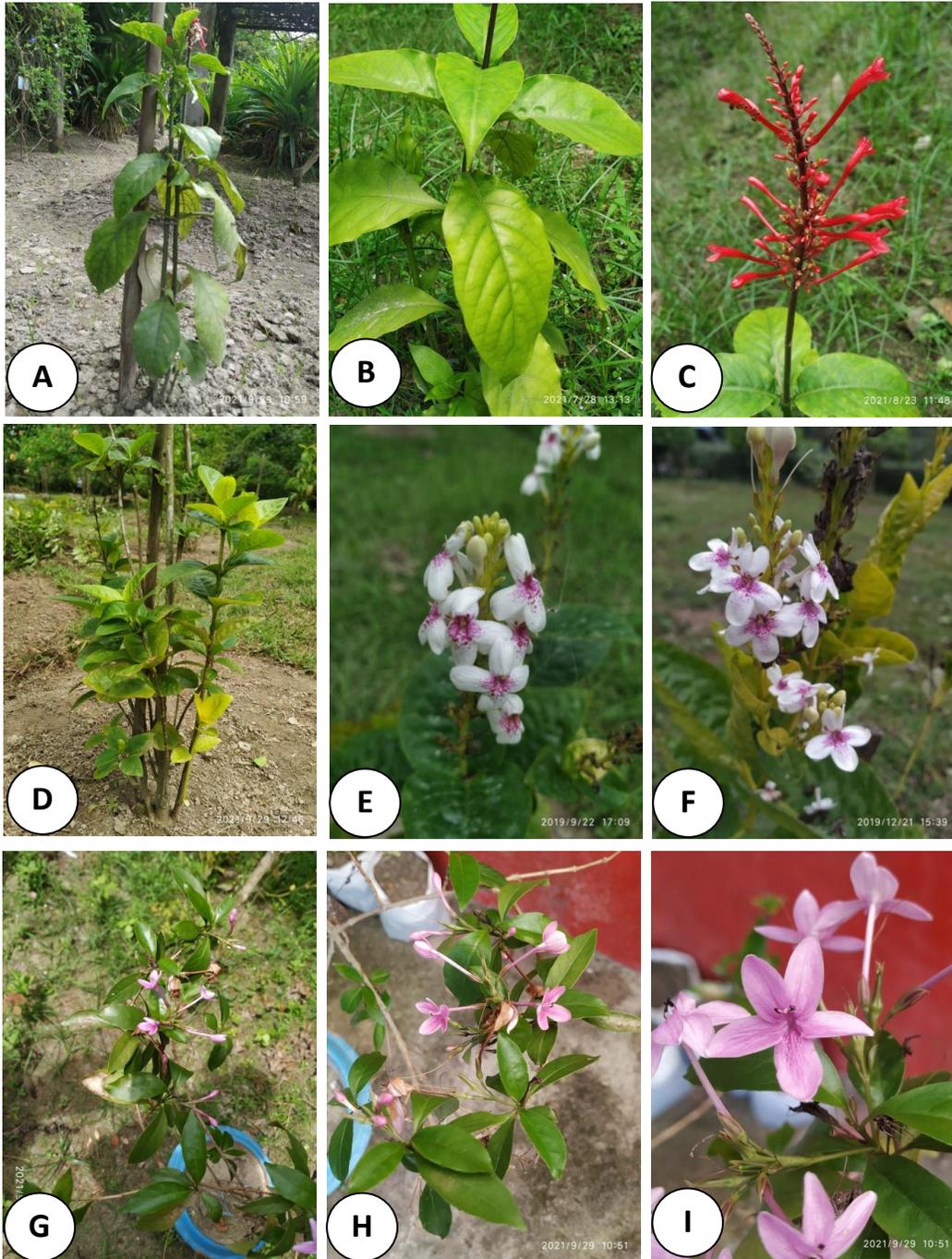


Figure 2. Photographs illustrating new species. **A-C.** *Odontonema tubaeforme*; **D-F.** *Pseuderanthemum maculatum*; **G-I.** *Pseuderanthemum laxiflorum*.

Distribution: Indigenous in Melanesia (perhaps in New Caledonia and the New Hebrides [Vanuatu]), introduced to Cameroon, Cook Is., Ecuador, El Salvador, Fiji, Gilbert Is., Honduras, Jawa, Leeward Is., Maldives, Hong Kong, Singapore, Marianas, Myanmar, New Caledonia, Nicaragua, Niue, Panamá, Puerto Rico, Society Is., Sri Lanka, Thailand, Trinidad-Tobago, Tuvalu, Venezuela, Venezuelan Antilles, Vietnam, Windward Is. In Bangladesh, it is so far recorded in cultivation only.

Conservation status: *Pseuderanthemum maculatum* is currently known only in cultivation state, hence no threat has been assessed and is considered as Least Concern.

Representing specimens examined: Mymensingh, Botanical Garden, Bangladesh Agricultural University, cultivated, 22.09.19. Ashrafuzzaman & Sarwar s.n. (AAHBAU)

Note: Two distinct (cultivated) forms are found, i.e. (1) asymmetric elliptic-leaf, purple coloured flowers plants and (2) symmetric ovate-leaf, white coloured flowers with purple-spotted throat plants.

***Pseuderanthemum laxiflorum* (A.Gray) F.T. Hubb., *Rhodora* 18: 159 (1916)**

Eranthemum laxiflorum A.Gray, Proc. Amer. Acad. Arts Sci. 5: 349 (1862). *Pseuderanthemum laxiflorum* (A.Gray) F.T.Hubb. in Fosberg, Smithsonian Contr. Bot. 45: 26 (1980). Type: Fiji, Viti Levu, Graeffe s.n. (lectotype BM [BM001041147!], designated by Gray (1862); isolectotype GH [GH00055082!]).

Common names: Shooting Star, Star Flower, Purple False Eranthemum, Purple Star, Amethyst Stars, Dazzler
Glabrous ornamental shrub, up to 1.8 m long (Figure 2G). Leaves often variegated magenta-purple with or without pink and/or white, elliptic-ovate, acute, decurrent on the 1–3 cm petiole, 5–15 cm x 2–4 cm, opposite (Figure 2H). Racemes spike-like, few-flowered, 2.5–3 cm diameter, purple-pink flower (Figure 2I). Calyx green or reddish, up to 8 mm long; corolla white to rosy-purple, glabrous or merely slightly ciliate, corolla tube cylindrical, 2.5 cm long, 5 ovate lobes, the three lower ones slightly broader compared to two upper ones, two prominent stamina, style longer than stamina, stigma bilobed. Capsule clavate, 4-seeded.

Flowering & fruiting: Throughout the year

Chromosome number: 2n=60 <<http://ccdb.tau.ac.il/search/>>

Ecology: Tropical, subtropical, warm temperate zones.

Mode of propagation: Seed, Stem cutting

Uses: It is a pretty attractive garden plant.

Distribution: Native to Fiji, introduced and cultivated in El Salvador, Gilbert Is., Puerto Rico, Samoa, Thailand, Vanuatu, India, Singapore. In Bangladesh, it is so far recorded in cultivation only.

Conservation status: *Pseuderanthemum laxiflorum* is currently known only in cultivation state, hence no threat has been assessed and is considered as Least Concern.

The species can be easily identified by predominantly axillary cymes, flowers distinctly funnel-shaped with a wide throat, and by the flower being quite large, dark pinkish-purple in colour and without dots.

Representing specimens examined: Mymensingh, Botanical Garden, Bangladesh Agricultural University, cultivated, 29.09.21. Ashrafuzzaman & Sarwar s.n. (AAHBAU)

***Whitfieldia elongata* (P.Beauv.) DeWild. & T.Durand,**

Bull. Soc. Roy. Bot. Belgique 38 (1, Comp. Rend.): 110 (1899). TYPE: "Benin", Palisot de Beauvois s.n. (G, holo.) <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=458915&lang=en>

Ruellia elongata P.Beauv., Fl. Oware 1: 46 (1805). *Whitfieldia longiflora* S.Moore, J. Bot. 18: 229 (1880). *Whitfieldia longifolia* T.Anderson, J. Proc. Linn. Soc., Bot. 7: 27 (1863). *Whitfieldia perglabra* C.B.Clarke, Fl. Trop. Afr. [Oliver et al.] 5(1): 66 (1899).

Common names: White candle

Erect or (usually) scrambling or scandent shrub to 3(–5) m tall, young stems green, sub-glabrous to crisped-puberulous in two bands, soon glabrous. Leaves elliptic or narrowly so, rarely ovate, largest 9.5–28 cm x (2.5–) 3.5–11 cm, apex acuminate to cuspidate, base attenuate, decurrent to the 1–4(–7) cm long petiole, margin entire, glabrous or sparsely puberulous along the midrib (Figure 3A). Cymes simple, racemiform or with two additional cymes from lower 1–2 pairs of bracts or with 2 racemes from upper pair of leaves to form a paniculate inflorescence 5–25 cm long (Figure 3B); peduncle (1–)2–5 cm long; axes with indumentum as stems or upwards with sparse to dense sticky stalked capitate glands; bracts caducous, white, or lowermost pairs foliaceous; pedicels (below bracteoles) 1–4(–7) mm long; bracteoles white, elliptic, 10–17 mm x 5–10 mm, sub-glabrous to densely glandular-puberulous; Calyx white, 2.5–4.2(–4.7) cm long of which the basal tube 2–5 mm, glandular-pubescent with glands to 1 mm long; lobes linear to narrowly elliptic, acute; Corolla pure white or with tube greenish towards base,

cylindric tube 3.5–5 cm long and \pm 2 mm in diameter, throat funnel-shaped, 0.7–1.2 cm long and 7–8 mm in diameter at apex (Figure 3C), pubescent with curly hairs to 1 mm long; lobes spreading or reflexed, elliptic or narrowly so, 1.8–2.8 cm \times 0.5–0.8 cm, sub-acute to rounded; Stamens exerted, didynamous; filaments 1.8–2.8 and 2.3–3 cm long, glabrous; anthers purple, narrowly oblong, curved, 3–4 mm long, connective and sides of thecae with dense short stalked capitate glands. Fruit capsule, 2.3–3.5 cm long, 2-seeded, seed-bearing part broadly ovoid-ellipsoid, 1.2–1.5 cm long; Seed 7–9 mm long, broadly ellipsoid to circular.

Flowering & fruiting: February–July

Chromosome number: $2n=34$ <<http://ccdb.tau.ac.il/search/>>

Ecology: Tropical and humid subtropical climate, evergreen lowland and lower montane forest (including secondary forest), usually on edges, in clearings and along streams, riverine forest; 10–1650 m.

Mode of propagation: Stem cuttings, Seeds

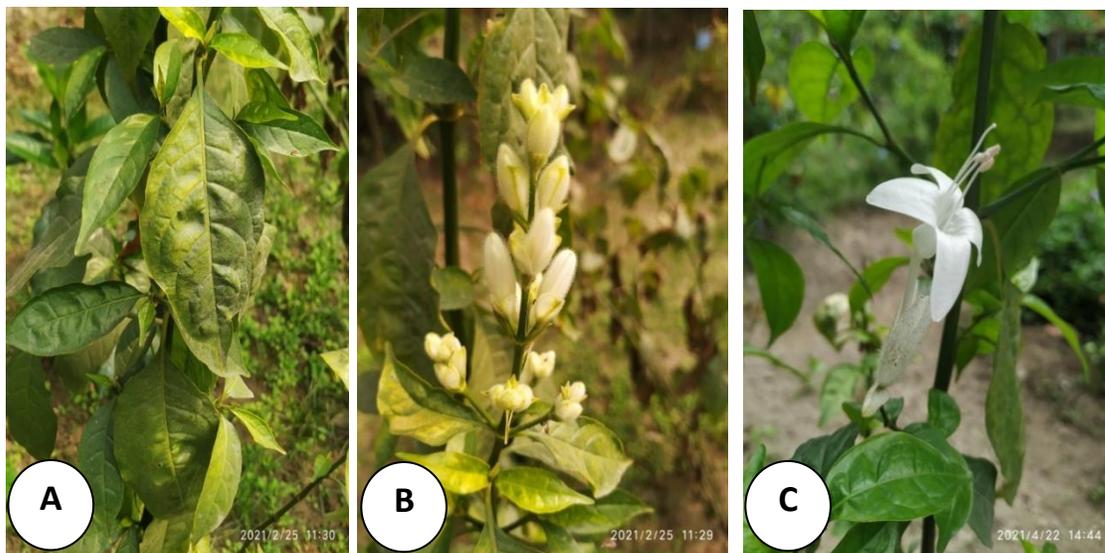


Figure 3. Photographs illustrating new species. A-C. *Whitfieldia elongata*.

Uses: Attractive pot plant, glossy dark green foliage is a great contrast to the white blooms. Plant parts are variously used in traditional medicine for several pathologies e.g., pulmonary troubles, stomach troubles, pregnancy, antiabortifacients, food poisoning, etc., also as dyes, stains, inks, tattoos and mordants products: household, domestic and personal items (Burkill, 1985).

Distribution: Native to Nigeria, Cameroon, Bioko, Central African Republic, Congo-Kinshasa, Rwanda, Sudan, Ethiopia, Angola, Zambia. In Bangladesh, it is so far recorded in cultivation only.

Conservation status: *Whitfieldia elongata* is currently known only in cultivation state, hence no threat has been assessed and is considered as Least Concern.

The species can be easily identified by long white corolline tube.

Representing specimens examined: Mymensingh, Botanical Garden, Bangladesh Agricultural University,

cultivated, 22.04.21. Ashrafuzzaman & Sarwar s.n. (AAHBAU).

Conclusion

Seven (cultivated) species belonging to six genera of the family Acanthaceae have been identified as new records for Bangladesh. Among the genera, two genera viz. *Odontonema* and *Whitfieldia* are reported for the first time in the country. Although these cultivated taxa enriched our plant biodiversity, proper steps should be taken to protect our natural habitats (forests) for the conservation of wild plant genetic resources.

Author contribution

MA conducted the field survey, identification of taxa and prepared the initial draft of the manuscript. AKMGS conducted the literature survey, confirmed the identification (of taxa) and contributed to revising the manuscript critically for important intellectual content. Both authors read the article and approved the final version to be published.

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